Carter James & Co.

CARTERS TESTED SEEDS FOR THE FARM

1901

CARTERS WINDSOR MANGEL (*see page 39*).

MANGEL
CLOVER
GRASS
SWEDE
TURNIP
CARROT
CABBAGE
POTATOES
ETC.

James Carter & Co

Farmers, Seed Growers and Merchants,

237, 238, & 97, HIGH HOLBORN,

LONDON, ENGLAND.

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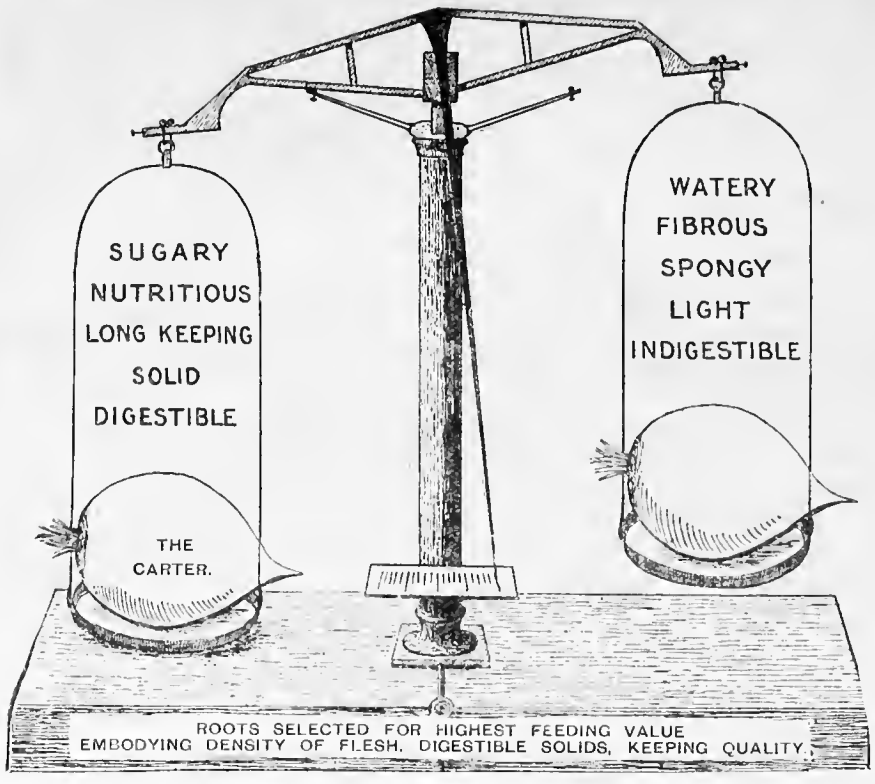

REGISTERED TRADE MARK.

A NEW METHOD IN THE SELECTION OF ROOT CROPS FOR SEED.

An important departure for the Twentieth Century.

PRACTICE WITH SCIENCE.

We bring before the notice of the Agricultural World an entirely new method which we have adopted in the selection of roots for seed and the perpetuation of their highest feeding qualities; a method which embodies the principle of "the highest food production."

This is not the first time in the history of our house that we have been instrumental in introducing new methods of cross breeding and selection in the many branches of Agriculture and Horticulture, and the results of our past labours are testified by the large number of articles of sterling and abiding value in all departments of the Seed Trade with which our name stands associated and identified.

To those who are not acquainted with the tedious processes of originating new races and varieties of any class of product in the vegetable kingdom, it would come as a surprise if they were informed of the length of time through which patient and persistent effort has to be sometimes sustained before a new introduction is ready to be brought before the public.

Nature is jealous of her domain, and will not always allow the hand of man to influence the operation of her laws, even in the attempt to improve her own productions. A study of the laws of nature, however, when combined with practical experience of their operations and an honest attempt to co-operate with nature, rather than to work against her, is never a fruitless undertaking, and, from the Agriculturists' point of view, can but yield results of lasting and practical value.

We have had in hand for a long time the study of how to assist nature to reproduce from generation to generation a higher average of feeding qualities in Mangels, Swedes, Turnips, and other feeding roots, than if left to herself she is disposed to do.

Our experiments, which have been conducted on the lines which through long and careful study and observation led us to expect profitable results, have demonstrated again and again that we are now opening up a new field of experimental and practical enterprise which portends great things for the future.

We have refrained from giving publicity to this until the opening of the new century, as being a fitting occasion to introduce the commencement of what must prove to be a new era in Seed and Agricultural industries.

Under the stimulus of high culture, nature produces qualities which under other conditions would remain unknown, and as we have adopted

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scientific methods which disclose with mathematical precision the degree of keeping qualities, and the proportion of food values contained in the different stocks of roots upon which we have experimented, we have proved to demonstration the significant difference between leaving nature unaided to satisfy the wants of the farmer, and in helping her to develop and produce the greatest amount of feeding stuff which her resources can be made to yield up.

Nature, aided by science on the lines of practical experience and observation, has therefore been our watchword in these experiments, and we now make public for the first time our object and aims.

We would remind our readers, however, at the outset, of what has been done in connection with field root culture in the century just closed—a work in which we have taken a considerable share. As a matter of fact the improvement of Mangels, Swedes, and Turnips upon given principles has been the object of our assiduous attention for many years. By studying the effect of high cultivation, of the application of suitable manures, of different compounds of different soils, and of other factors which enable man to stimulate the forces of nature, we have been able to introduce from time to time improved stocks of all these feeding roots. Our previous methods of improving, by these means, the position of the root grower, have been to select for stock purposes those roots which were conspicuous by reason of their large size, heavy weight, good shape, fine texture, and general attractive appearance in bulb, neck, and top. The handsome and, indeed, colossal roots which are now year by year exhibited afford sufficient testimony as to what has been achieved in the enormous increase in weight of roots, acre for acre. Weight and size, however, are not the all in all; they are only the means to an end, which should be to increase nutritive properties and hence feeding values.

Chemical analysis in the interests and service of agriculture has been a remarkable feature of the nineteenth century. So far as root crops are concerned, however, it has been mainly directed to promote the production, by artificial stimulus, of greater volume and weight per acre. Before agricultural chemistry came to the front and proved what science could do for the farmer, men lived under the belief that nature could work her own course, and even, if necessary, by some magic means, transform mineral elements into organic food, and no regard was paid to the composition of plants, of soil, or of manures. Things are different to-day. It can be safely said, that among the many valuable contributions which the science of chemistry has made to the advancement of practical every-day agriculture, the investigation of the comparative feeding values of different substances commonly employed by stock-breeders and farmers generally stands out most conspicuously, but the definite information which has been obtained by means of these investigations has been only partially applied. Artificial manures and feeding stuffs have engaged much attention, but the organic powers of the roots themselves, and the feeding values they yield or might yield, have not received the attention their importance demands. It is to remedy this we have been carrying out our investigations, and shall continue to do so, firmly convinced as we are from practical experience, that it is possible to superinduce upon roots habits of assimilating and accumulating more nutritive elements than has obtained in the past.

Happily, one of the results of the application of science has also been that a more precise and exact habit of thought and calculation has been acquired by people who formerly were contented to accept loose statements and rough estimates regarding matters of agriculture. These have given place to minute and precise experiments, and we confidently anticipate that the benefits which are to be derived from a pursuance of this method of procedure in the special work of improving the food-yielding power of roots of all sorts, will be appreciated at their full value.

WATER.

It is, of course, a recognised fact amongst agriculturists who have gone into the matter at all, although it may come as a surprise to those who have not hitherto given the question any thought, that Mangels, Swedes, Turnips, and all similar feeding roots contain among their various constituent parts a large amount of water, and that this water does not contribute in the slightest degree to the flesh-forming capacity of the roots. The essence of our enterprise has been to stimulate nature, to increase the percentage of food constituents, and incidentally to diminish in the same proportion the valueless water. Many farmers who quite understand the subject take up the sound position that the proper quantity of Turnips for an animal to eat is as near as can be calculated just that amount which will satisfy its desire for water; and seeing that the moisture in Turnips in their natural state is far below the temperature of the blood of the animal, the heat of the body is reduced by consumption of the Turnip, instead of being sustained by it, so that it is possible, in the case of the poorest Turnips, that an actual loss accrues to the animal economy when a quantity is consumed more than sufficient to satisfy the natural requirement for water. A most important fact is, therefore, overlooked, when it is ignored that the value of a crop depends, not upon the gross weight per acre of the roots, but upon the net amount of nutritive ingredients they contain. If, as is sometimes the case, a field of roots of enormous size is found to consist of big, watery, tasteless roots, the fact speaks for itself that, if this size and weight be produced at the expense of the nutriment the roots contain, better were it for the stock-feeder that he should grow roots, not only sound, solid, and crisp, but also sugary, juicy, and digestible; and where these qualities can be combined with a hardy constitution, resisting to a maximum degree the elements of disease, decay, and decomposition, the ideal root is obtained. To this end our efforts have been and are now directed.

The presence of valueless water, although to the largest degree in Turnips, extends to all root crops. In estimating their nutritive value, water counts as nothing, and, indeed, where it exceeds a certain percentage it is even possibly harmful, and the sole value is contained in the solids or dry matter of the root, which are made accessible for calculating purposes by a process of extracting the water. These solids differentiate in their

feeding value according to their compounds and digestibility, which we treat with below. But the first object is to reduce the proportion of water, and realize that it is valueless.

For the benefit of our readers who have not yet given the matter attention, some of the facts we have brought to light by our analyses and investigations may be of interest.

Mangels contain of water from 85 to 94 per cent. As the 94 per cent. co-exists with 6, and the 85 per cent. with 15 per cent. of solids, it will be seen that a given number of roots would, in the one case, produce 6 cwts. of nutrients, and in the other 15 cwts. Swedes contain 86 to 92 per cent. of water, Yellow Turnips 90 to 92, White Turnips 92 to 95, Carrots 85 to 92, and Kohl Rabi 86 to 92 per cent.

These figures indicate the difference in value between a close, firm, and hard texture on the one hand, and soft, spongy, watery roots on the other—a difference which might be considered obvious without analysis.

When it is found sometimes that a field of Turnips has carried a certain number of sheep longer than the owner was led by the appearance of the crop and the estimated gross weight to expect, this must surely be due to the inherent higher nutritive value of the crop in relation to its bulk, and it is obvious, as the foregoing figures demonstrate, that a given crop of Turnips containing, say, 90% of water, which would feed a flock of sheep for a month, would, if it were improved so as to contain only 85% of water, carry them six weeks.

SOLIDS.

The varying quantities of water in field roots have provided a problem which has engaged the attention through long, continuous, and laborious experiments of skilled scientists, who have all agreed in the one conclusion—that the less proportion of water contained in a root the higher its feeding value. **Not that it necessarily follows that the dry matter is equally nutritious in all roots; the feeding value of this may and does vary. One may contain a large amount of indigestible fibrous matter, and another a preponderance of digestible sugar and allied constituents.** The one feature common to all is that the reduction of the water means enhanced feeding value, and the increase of the water a diminished value. Nevertheless, on analysis, **the dry matter of some roots reveals such variations in composition that two roots may contain a similar amount, and yet the one may possess nearly double the feeding value of the other.**

Comparative analysis shows that in the production of solids the Mangel stands foremost, then come Swedes, followed by Yellow Turnips, and lastly, common White Turnips. It does not, however, follow that nothing but Mangel should be grown for a root crop. There are many considerations which decide a farmer as to the roots he grows in any particular field at any particular time. Turnips for early feed, Swedes for resisting the cold, and Mangels for storing till the spring, will naturally be the order of the day. Ten tons of Mangel to-day may contain as much dry matter as fifteen tons of Turnips; there is no reason, however, why the Turnips should not to-morrow approximate to the Mangel of to-day, and the Mangel of to-day increase in feeding value in the same ratio.

Continuing our analytical method and applying it to the solids, in which as before stated lies the only value there is in a root for feeding purposes, we find them to vary a great deal in quantity and in composition; but it must be obvious to anyone who will give reflection to the subject that the value of the solid matter depends absolutely and solely upon the quantity contained in it of digestible food elements, not only on account of the simple fact that the animals can only appropriate that part of the solids which can be so described, but animals are like human beings, they eat with avidity that which appeals to their palate, and such food does them more good than that which is unattractive and indigestible.

SUGAR.

Now sugar and its allied compounds form the portion of the solids which can be said to be intrinsically of the first importance; as a high percentage of these compounds indicates a superior feeding value, and this is the quality we have sought to develop for the improvement of our stocks of feeding roots.

In taking Mangel as our illustration, a farmer now-a-days instinctively grows for his stock the Mangel which he believes to be the most sugary; he finds his cattle like it, and do better on it than on sorts inferior in this respect. Accordingly we have adopted a scientific method which enables us to ascertain with exactitude the amount of saccharine matter contained in the roots we select for seed purposes. **The fact that we have adopted a system of perpetuating a higher percentage of food constituents in roots will not come as a surprise to those who are acquainted with all that has been done on the Continent of Europe** by those Sugar Beet growers who have, by the application of scientific methods, fixed and perpetuated for their special purposes a higher percentage of saccharine matter than was ever obtained before; but to those who are not aware of what has taken place in the development of the sugar-producing power of the Beet, we may say that the installation of scientific appliances for these operations is one of the first necessaries of a seed grower's establishment where this particular industry is carried on. Beet and Mangel have sprung from one common ancestor, in fact in some parts the terms are to some degree interchangeable; but while the sugar manufacturer's grower has looked after his own interests, and developed in one branch of the family an extraordinary productive power for his particular purposes, the stock-breeder and farmer, not realizing what latent resources were at his disposal, has not studied the peculiarities of that branch of the family which ministers to his peculiar wants, further than to aim at producing the greatest bulk and weight possible.

Why should it not be practicable in the course of the twentieth century to improve the products of the Mangel and other roots for feeding purposes in the same measure and degree as agricultural experts have improved the sugar-producing power of the Beet in the nineteenth century?

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It may be interesting to mention a few facts as an historical parallel. It was quite in the beginning of the century when a start was made in increasing the saccharine matter by selecting processes, and about the year 1850 a ton of Sugar Beet roots would yield rather more than a cwt. of saccharine matter; in the 'fifties a ton was got to produce 1½ cwt.; in the 'sixties and 'seventies nearly 2 cwt.; in the 'eighties and 'nineties 2½ cwt. Until 1850 the selection of stock roots, or as we call them "mother roots," was made according to form only, but in the 'fifties a step forward was taken by inaugurating a system of testing the specific gravity of the flesh, and a little later of the expressed juice also. In 1862 the polariscope was tried for the determination of sugar value, and since 1866 this instrument has been everywhere recognised for the purpose. Concurrently with this increase of sugar, experiments have been made for the purpose of increasing the productiveness as a root crop with most satisfactory results.

The Sugar content of the root has been increased from 5 per cent. to a possible 20 per cent., but it has taken a century to effect this. If the process we have inaugurated, and now introduce to the public on the opening of the New Century, is instrumental in showing at its close that the food-producing power of roots has increased in a like manner four-fold, we shall not have initiated it in vain, although our successors, and not we, ourselves, will live to see it.

We have placed these particulars on record as being in themselves interesting, and as affording an historical parallel, which proves that we have raised no chimerical question, but one which must ultimately result in enormous benefit to the agriculturist.

The great variation in the quantity of water in feeding roots is almost equalled by the variation in the saccharine matter in the solids, as will be seen when we mention the fact that we have proved reputed stocks of Mangel to differ from 3 per cent. to 7 per cent., while extreme cases have been proved to show a still wider variation. Other roots in a like ratio.

It will be observed that we have included in our project not only Mangels, Swedes, and Turnips, but also Kohl Rabi and Carrots, both of which are important crops to the farmer. It is true that occasionally we hear of a particular variety of Mangel being recommended because of its sugar product, and as it is allied to Beet, it is probably assumed—without any adequate tests, or, indeed, any tests at all being made to substantiate the supposition—that it has a disposition to produce sugar, which indeed it has; but we have proved that the same property exists in all the crops we are now bringing under our survey, and it can be consequently increased. Until we took the matter up we believe that no attempt had been made to increase the extent of such nutritive properties in these roots, but they were left to nature's concourse of circumstances to improve or depreciate their value in this respect without let or hindrance. Where would the Sugar Beet industry on the Continent be at the present moment if this *laissez faire* principle had been left operative by those Sugar Beet growers, who have now for generations been vigorously prosecuting their improvements in Beets on the same scientific principles as we are advocating now for all the roots which are grown for the food of live stock?

Both Carrots and Kohl Rabi, if improved, are destined to get into more general favour. The former will frequently yield enormous crops off land not manured, where other root crops would starve, its downward growth penetrating and reaching compounds in the subsoil not accessible to Mangels, Swedes, and Turnips, and hence the great value we set upon Carrots as an alternative field crop for live stock. Kohl Rabi also is destined to become a more general favourite, owing to its hardiness and nutritive qualities, indeed it succeeds sometimes where even Swedes would fail. Its leaves, upon analysis, prove to be of higher feeding value than those of Turnips, are very much relished by stock, and in the case of milch cows do not impart the disagreeable flavour to butter. Therefore, recognising the value of these two crops, although they are at the present moment only used to a limited degree, we have included them in the enterprise we have in hand.

SPECIFIC GRAVITY.

As already stated, the solids contain the only nutritive property in the root, and of these substances the saccharine matter is of the first importance; the remaining compounds of the solids can, however, be valued by a test which we have applied, and can be fixed in the main, either as an indigestible fibrous element or as, more or less, soluble compounds. **This is brought out under the application of our combined method of analysis, including special tests for determining the specific gravity, not only of the root as a whole, but also of the juice.**

The hardiness and keeping quality of the roots are so closely associated with the specific gravity that we ask our readers special attention to our remarks under this head.

Apart altogether from roots, we may say that among the arts for determining the relative value of different substances, that of fixing their specific gravity is one of the most useful, and it has been recognised as such by the most eminent of scientists. The higher the specific gravity, the better the feeding value, is a good general maxim. A man instinctively, but only approximately forms his opinion of the specific gravity of a root, or rather he judges of the value of the root by its specific gravity, when he takes a heavy solid root in his hand and considers it superior to one of a larger size, but albeit watery, fibrous, and light; and we believe that the value of a process which fixes the specific gravity with mathematical exactitude will be readily seen and its importance conceded. The specific gravity, moreover, provides an index to the keeping quality of the root. The quantity of water and air cells is a determining factor in this matter, and it is their presence in a root which constitutes a disturbing cause, for in them lies the potentiality which may give rise to decay and decomposition. The greater the proportion of these, the greater the certainty of early falling away, decay, and disease. A high density therefore indicates a smaller proportion of these irritant causes, and stamps the root with the character of a "long keeper."

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As the proportion of air cells affects the specific gravity of the whole root, **the value of the calculation is not exhausted until it is applied to the expressed juice,** with the air cells dissipated; and herein is found, not only a determining factor of the keeping quality of the root, but a relationship with the solid compounds which constitute the feeding value. The juice is the vehicle which conveys to the animal the best parts of the solids in a soluble digestible form, hence the importance of its analysis. The specific gravity of a root is subject to variations according to the conditions under which it is developed, but it must be obvious to anyone that the one element of certainty is that, the higher the density, the better the quality of the root and the more solid the constituent parts it contains, and it naturally follows that by careful rejection of those of lower specific gravity the better the stock.

(Before we leave this part of the subject we will mention here also that we attach such great value and importance to the principle of specific gravity that we are already applying it to cereals and seeds themselves. We state this *en passant*, not for the purpose of laying any data before our readers on this branch of the subject, but rather to prepare them for an announcement at a later date, when we have advanced further in our experiments and can place the results upon record.)

The conclusions we have drawn from our exhaustive experiments on roots are as follows:—

1. All roots have a tendency to contain an excess of water, which in itself is valueless.
2. Some varieties contain water to a harmful degree.
3. A small deviation in the percentage of water alters materially the value of the crop in feeding properties.
4. Five tons of one crop may contain as much solid food as ten tons of another.
5. The obvious necessity arises of ascertaining the weight of solids in any root crop.
6. The specific gravity of a root is a guide to its keeping quality.
7. The specific gravity of the juice is a guide to its feeding quality.
8. When the density is highest in both the juice and the whole root, the value of the stock is materially increased.
9. The increase of saccharine matter in Mangels and all other roots goes hand-in-hand with the increase of feeding value.
10. **The quantity of dry matter is not necessarily a determining factor in the feeding value of roots.**

SIGNIFICANT FACTS.

It must not be overlooked that the different qualities in roots which are indicated by the varying degrees of density, the presence or absence of sugar and digestible solids, and the large or small amount of water, are solid, substantial, and tangible differences, which can only be fully realised when they are converted into money value.

From the outset we have recorded elaborate tables registering the different qualities of the roots passing through our hands from all sources, tables which are preserved for subsequent use and comparison, as we proceed from step to step in the improvements we are effecting. As our method comprises four distinct sets of figures, representing four values, we have had to adopt a system which enables us to register the combined qualities under a common denominator, the calculation being worked out to a decimal point.

In our register the combined qualities of the poorest Mangel only reached 10·15 per cent. of value, while the combined qualities of the best amount to 25·45 per cent. of value. These are the two extremes, and they show at a glance the necessity of discarding the one and fostering the other.

Now, for illustrative purposes, let us convert this into money value. We have observed that Sir John Bennet Lawes and Professor Wrightson agreed in estimating a ton of feeding roots at 8/2 per ton. This was not put down as an arbitrary value but as an approximate figure as a basis of calculation, and we can, therefore, adopt it for our purpose.

It is perfectly obvious that if roots are valued merely by their weight the two qualities of Mangel above cited will be of equal value, whereas if they are valued according to their intrinsic and real value they are worth 8/2 and 20/6 respectively.

Similar illustrations could be given in respect to Swedes, Turnips, Carrots, and Kohl Rabi.

THE SEED GROWER.

Having applied ourselves to the analysis of the roots and discovered wherein their highest value consists, the next step we had to take as seed growers was to determine the best method of growing seed crops so as to perpetuate the qualities in the bulbous root. A seed grower has many lessons to learn, the majority of which can only be acquired by actual personal application and experience.

It seems obvious to us that the function of a seed grower who rises to a sense of his responsibility, is not only to produce seed which in its turn will produce roots, but seed which will produce roots embodying all the best characteristics and possessing the fewest possible of the drawbacks which are brought to light by such investigations as we have in the foregoing lines placed before our readers; and the problem we have had to solve has been how to do this in a practical and efficient manner. It may be urged that at present we have only demonstrated the great variations which exist in the different properties of the roots. We shall show that we have done this and more, for we have worked upon those variations in the roots which we have planted for the production of our seeds, and we have done so at the period of their growth, when their best characteristics are developed and become a part of the life of the root.

The controlling power over the qualities of the crops which lies in the hands of the seed grower is far greater than is generally supposed, and he can turn the forces of nature in different directions to suit his different objects. The seed grower's duty is in fact to watch every tendency and disposition of plant life, exhibited differently under varying conditions, and to work on the principle of the survival of the fittest, for the purpose of attaining to those particular objects which he has before him at any given time.

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The susceptibility of root crops to such operations is very great, and the laws of heredity are most accommodating. Particular habits of life and growth can be developed in the vegetable kingdom as in the animal kingdom. **Let us illustrate this.** For instance, analysis has brought to light a relationship between the development of the leaf and of the root respectively, and the compounds which build up both, and it has been made abundantly manifest that it would not be difficult to superinduce upon the plant the habit of developing leaves if that were the object, and the fittest for such a purpose could be easily perpetuated. Again, the natural product of the Turnip plant is oil from its seed, and it would be the simplest matter possible to so cultivate this article that the life of the plant would be thrown into the production of oil. If the maximum quantity is to be produced, the natural disposition of the plant for appropriating the necessary ingredients of the soil and manures for these particular purposes would have to be studied. But the Turnip has been converted into a crop for a totally different product, and if success is to attend the efforts of those who cultivate it, its powers of assimilating the particular compounds which go to build up the nutritive root rather than to produce leaves or to produce oil in the seed, must be studied, stimulated, and increased. Associated with Mangels is a very pertinent illustration —the question has been asked us time and again how to prevent our roots from running to seed instead of bulbing. It is not an uncommon sight to see a field of Mangel roots with quite a percentage of "runners" which have bolted to seed instead of forming bulbs. Varieties of Mangel differ very much in their tendency to this weakness. Our success in keeping this to a minimum is due to our system of saving our stock seed from bulbed plants, instead of from ordinary sized plants as grown in a seed bed. Any which are disposed to bolt are thus discovered and discarded, whereas the system of not allowing the plants for stock purposes to bulb, precludes the possibility of this sifting process; those with the inherent tendency to bolt are planted with the rest, and the tendency confirmed and perpetuated. Experiments have shown us the reverse of the picture, which is very instructive. By saving the seed from the "runners" in a field of Mangel, and sowing this seed, the runners were materially increased the first year, and by repeating this process to the fourth generation they had increased from 4 per cent. to upwards of 90 per cent. By looking at the matter thus conversely we can see by implication what has been corroborated by actual experience, that the best way to eliminate the runners is to so grow the plants that these may show themselves and be removed each year. Again, if it could be imagined that fibrous-rooted Mangels, Swedes, and Turnips could be required for any possible purpose, they could be so cultivated as to produce very little besides water and indigestible fibre. In fact, the tendency of many plants, especially the *Brassica* family, is to revert to their original natural type, and it is the directing and controlling hand of the grower which prevents the operation of this natural law, which of itself would cause stocks to degenerate into ill-shapen, undersized roots of impoverished quality.

Other illustrations could be given to show that our assertion on this matter of susceptibility of the roots to the control of the expert grower is simply in accordance with an actual and obvious fact, while we would recall the well-known fact that the origin of our present day Turnips is to be traced to the time when they produced no bulb whatever. Unfortunately, the prevailing method of raising plants for seed purposes, even by houses of repute, is one which precludes all possibility of studying these matters. Every farmer knows that there is no natural product more imperious in its demands for suitable soil, situation, and time of sowing, if fully developed successful roots are to be realised, than are our cultivated bulb-forming Turnips, Swedes, and Mangels, and yet this fact is totally ignored by the majority of seed growers. Indeed, many sow the seed beds for seed producing purposes at a time of the year when it is absolutely impossible for the bulb to form itself, so that any good qualities there may be in it are not brought out and never enter into the life of the plant. Furthermore, they go out of their way to select a piece of ground, which, by its nature and formation, shall hold back the plants in their young and undeveloped stage. The system we advocate is to sow crops for stock seed purposes under conditions which are most favourable for producing well-developed roots, in order that their best qualities may be brought into being; test them, and by rejecting all that are comparatively inferior raise the average quality of each successive generation.

The crucial test has been to devise the means of applying this method of eliminating the weak and increasing the strong at the time of planting the roots for Seed.

TESTING APPARATUS.

In the first place we apply ourselves to reducing the quantity of water, and we have adopted a method by which we can ascertain the relative proportion of this, and can reject all those roots which contain the largest quantity, reserving for planting only those which contain the smaller percentage. This we confirm by determining the specific gravity (specific gravity of the whole root = keeping qualities). We then bring into use an ingeniously constructed instrument, which enables us to take from the root a small proportion of the flesh in such a manner as to represent exactly the entire root without injuring it for planting purposes, and in the laboratory we can determine precisely the specific gravity of the juice (specific gravity of the juice = feeding qualities). We thus reject all those which do not combine a high degree of density in the juice with a high degree in the root as a whole. The next process is to ascertain the percentage of sugar compounds. For this purpose we have installed apparatus with a combination which has never previously been tried, and have availed ourselves of the most highly finished and perfect scientific instruments obtainable, either in this country or on the continent. By means of these we are able to make laboratory analyses of the reserved roots—which we call "mother roots"—and thus ascertain the total of saccharine matter and the allied compounds of each root, without destroying it for planting purposes. This, combined with the double test of specific gravity, as above described, forms a comprehensive and thorough test, which gives to those roots surviving the ordeal a standard of quality unapproachable by those selected by any other conceivable method.

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We think it will be seen from this that the test to which we submit the "mother roots" we select for planting for Seed, is at once crucial and thorough. It strikes, indeed, at the very physiological system of the root. One important fact is brought to light from a searching analysis of the physiology of Turnips and other roots, and that is the divisions into which the constituent parts are formed; one consisting of merely circulatory and unappropriated constituents, and the other of secreted and fixed. Our aim and intention is to make the one subservient to the other. Experience has led us to the conclusion that this test must be made at a certain period of the life of the root, and that the roots intended for seed must be grown to a size, at which period of growth all the qualities it is desired to perpetuate are developed. Careful analysis, made at different stages of development of a root, has shown that at different periods different constituents are brought out, or the same constituents in different proportions. The root has not the same percentages of sugar, water, and other compounds at all periods of its growth; the relative proportions are determined mainly by the development and age of the plant. We have profited by this, and have adopted the system of selecting roots for seeding purposes at the period of growth, when the proportions are most favourable to an increased percentage of sugar and other digestible matter, and consequently a decreased proportion of water, so that latent powers of the root for developing feeding qualities are brought into play before the plant is stimulated to throw up seed bearing stems.

Modern knowledge of the use of manures has been the means of transforming barren wastes into fruitful places of the earth, but it has been mainly operative upon the external conditions rather than upon the constitution and inherent powers of the roots themselves. Our efforts have now been directed to work upon these, to lay hold of and develop those qualities which make for value, suppressing and nullifying, where possible, those elements which render no service whatever to man or beast. **By playing upon the subtle forces which build up and enter into the very constitution and character of the different species, suppressing the weak and developing the strong, we are evolving hardier races and more generous food producers.**

The analysis of a large number of roots reveals a great variation in solids; the least proportion of dry matter is sometimes found in the largest root, or conversely—the larger the root the greater the proportion of water; also a large amount of dry matter with little feeding value.

The fact is that the size of the roots depends upon a set of varying circumstances; the manures enter largely into the matter; the constitution of the soil, the treatment, the space given to them to grow, and other conditions. This is so far recognised that no farmer ignores them. But the external conditions, as before stated, are not everything; the inherent quality of the root, its origin and history, its breed and constitution affect the result to a larger degree than is generally supposed. This is also recognised in a way by the fact that every farmer has his own particular variety, which he thinks brings him better results than others—a discriminating power which will be justified if he takes those varieties which have in themselves perpetuated the qualities he requires for his cattle.

Attempts have been made in the past by agricultural chemists to trace to their causes the variations of the feeding qualities in different roots, while elaborate experiments have been made on the assumption that the variations were due in the main to the difference in the soil and manurial compounds, so that by varying the manures according to the soil the feeding values could be materially affected, if not largely controlled; but while we do not underate the results, we venture to say that they have gone to establish the fact that the difference is so largely dependent upon the variety and breed of the plant, that theories which left this out of calculation proved to be somewhat illusory. Not that difference in manures is a negligeable quantity; on the contrary, evidence resulting from our investigations goes to prove that phosphatic manures, from the fact that they favour bulb formation and promote early maturity, may contribute indirectly in an important degree to an increased percentage of dry matter, provided that the powers of assimilation are studied.

Many of the theoretical investigations which have been made, both in this country and on the Continent, on the many-sided subject of the assimilation of the nutritive elements by plants and roots, have brought out apparent contradictions; and we are not concerned so much with supporting this or that theory as we are with following the line of least resistance, in helping nature to secure for the farmer and the stock-keeper the greatest advantage possible in the food yielding powers of his crops.

We have found that in keeping Swedes and Turnips over the winter some have proved to be practically valueless when internally examined. If after being left in this way they are divided through the centre, some are found to contain a large empty cavity, some show signs of decomposition of greater or less volume, and yet in some of these cases no signs of decay have been seen from the outside. It is conclusive in such cases that we must look to the constituent parts of the roots to account for this. Comparing these variations in decay with the variations in the constituent parts of the same crops, at the time of lifting, we are led to the conclusion that the best keepers of each variety can be determined, not only by keeping them, but by our new method; and that if these only be planted the keeping quality is raised.

We have fortunately had opportunities of studying processes abroad as well as in this country. We have been able to profit by the experience of the skilled continental scientists, who have laboured for generations in the improvement and productive power of Beets, many of their conclusions resulting from scientific investigations of many years duration, applying equally to Mangel and other roots.

We are fully conscious of the pitfalls into which experimenters in the field we are now surveying may unwittingly fall, and of the necessity of conducting the operations not only in a conscientious and painstaking manner, but also in the light of others who have placed upon record the result of their labours; hence the comprehensive character of our investigations, not only to ensure that all possible elements of doubt should be eliminated, but also to take advantage of all elements calculated to promote our object, and by establishing, step by step, and

upon a secure basis, the conclusions which we have found demonstrably clear and certain.

One result of our labours we hope will prove to be to increase the range of root crops available for farmers who are at present suffering under limitations. In some parts of the United Kingdom for instance, the cultivation of the Mangel is neglected, owing to the belief that it is not naturally suited to the situation. If by reducing the watery tendency and reinforcing its nutritive properties, it comes to be looked upon with favour, and proves to be of utility in localities where at the present time it is neglected, we shall have done something to place in the hands of a large number of farmers a root crop which is second to none in service to the stock-feeder, and although the road which leads to such results may be long and laborious, we shall not desist in our work.

We do not claim to have made a discovery. All we claim is to have given a practical turn to proved scientific facts, and, having applied them in the arena of everyday practical agriculture, we lay before agriculturists generally the material advantages which must and will inevitably accrue therefrom.

There is no finality in nature, there is no finality in science, and while we shall continue to re-select our roots year by year for size, weight, form, and texture, we shall do so in conjunction with the new system which embodies the principle of highest food production and which we have in the last few years proved to ourselves to give promise of great results in increasing the nutritious matter in the roots, in inducing upon them habits of growth, and in stimulating their powers of yielding intrinsically valuable food, which they possess by nature in a latent form, so that while maintaining their present enormous size and proportions they will increase the food they yield.

Service of untold value has been rendered by such skilful scientists as Anderson, Lawes, Voelcker, Aitken, and Dyer, besides others, who have devoted years of labour to the cause of Agricultural Chemistry. These talented and conscientious scientists have rendered accessible information which is of the most intrinsic worth to the farmer to-day and yet was not dreamed of by previous generations, and their analytical researches into the feeding values of roots do not form the least of the services they have rendered.

It is for the agriculturist of to-day to profit by the research of the scientist of yesterday, and to apply with the same perseverance and patience to the problems of every-day practical farming those lessons and those facts which have been brought to light for his special benefit. In other words, the agriculturist should, with the aid of the expert seed grower, begin where the scientist leaves off.

It was in this spirit as Seed Growers that we commenced these operations, have continued them up to the present time, and shall proceed with them year by year, satisfied that each step gained will be but a fresh starting point for new achievements in the future.

James Carter & Co

After a series of experiments, including every variety of feeding roots of any repute, we have been able, for the first time, to determine their relative values under our new analytical method, on the principle of "highest food value," and have selected for perpetuating purposes those which embody the strongest combination of **specific gravity of the entire root**, representing the keeping quality; **specific gravity of the juice,** representing the feeding value (albumen carbo. hydrates); **highest percentage of sugar and allied compounds; digestible solids; and the least percentage of water.**

We now give our customers the advantage of this selection, and we offer, so long as the very limited supply at our disposal lasts, the identical stocks so selected, each of which is an advanced type of its race when judged from these vital standpoints of quality and value.

It will be observed that we associate our name with each as the introducers, and we combine therewith the date of introduction :—

		s.	d.
The 1901 Carter Mangel	price per lb.	2	6
The 1901 Carter Swede	,,	2	6
The 1901 Carter Yellow Turnip	,,	2	6
The 1901 Carter White Turnip	,,	2	6
The 1901 Carter Field Carrot	,,	3	6

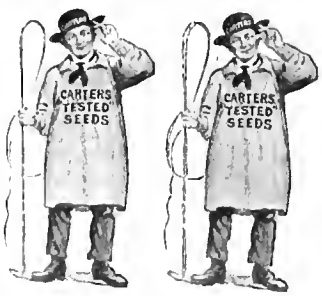
The 1901 Carter Kohl Rabi (stock too small to offer this season).

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

In order that intending purchasers of CARTERS' TESTED SEEDS may be assured of the genuineness of what they are buying, we have decided to adopt the Trade Mark (of which the illustration herewith is a reproduction), stamped with the year the seed is distributed by us (**SEASON 1901**); and we hereby give notice that this Mark, which has been duly registered according to Act of Parliament, will for the future be found attached to every package of seed offered in this catalogue in the form of a print or label, and we would earnestly entreat intending purchasers of CARTERS' TESTED SEEDS to see that the packets with which they are supplied bear this distinguishing mark. It is not sufficient to be told that "these seeds came from Carters';" our name and Trade Mark must be there, and we can only guarantee seeds as grown

Trade Mark—
TWO CARTERS.

SEASON 1901.



All Packets sent out by us bear our Registered Trade Mark of Two Carters as above.

Trade Mark—
TWO CARTERS.

under our supervision when they are sold and delivered in packets bearing our new Trade Mark, as represented above, stamped with the year the seed should be sown.

We raise no objection to seeds sold by others, but in justice to ourselves we are most anxious that intending purchasers of Carters' Tested Seeds, whose esteemed orders and recommendations we greatly value, should be quite certain they are buying Carters' Tested Seeds, and of the newest harvest.

This particular Trade Mark has been adopted after very careful investigation, to avoid clashing with other trade marks. As bona fide farmers and seed growers, the device of two agricultural carters seems to us a very appropriate one, and sufficiently distinct to prevent confusion.

☛ Address for all Letters and Retail Establishment:

237 & 238, HIGH HOLBORN, LONDON.

TELEGRAPH AND CABLE ADDRESS—"CARTER, LONDON."
TELEPHONE—332, HOLBORN.

Farm Seed Warehouses: 97, HIGH HOLBORN.
Experimental Grounds: FOREST HILL, KENT; MORTLAKE, SURREY.

James Carter & Co

GRASS SEEDS
FOR 1, 2, and 3 or 4 YEARS' LEYS,
AND
TEMPORARY PASTURES.

The following preparations will be found admirably adapted to the various rotations of crop for which they are prepared, and in such proportions as will produce the largest Hay Crop and quantity of nutritious food for the duration of time for which they are specified. An interesting article upon Alternate Husbandry will be found in Carters' "Practical Farmer." Price 1s., post free. Gratis to Customers.

MESSRS. CARTERS' OWN PRESCRIPTIONS
FOR
1 YEAR'S MOWING OR GRAZING
COMPRISE—

FOR HEAVY SOILS.

lbs.
6 ... Red Clover (*Trifolium pratense*).
1 ... Alsike Clover (*Trifolium hybridum*).
1 ... Trefoil or Hop (*Medicago lupulina*).
3 ... Perennial Rye Grass (*Lolium perenne*).
3 ... Italian Rye Grass (*Lolium Italicum*)
5 ... Cocksfoot (*Dactylis glomerata*).
1 ... Timothy (*Phleum pratense*).

	s.	d.
20 lbs. per acre, best quality, costing	14	6
20 lbs. per acre, good useful quality, costing	12	6
Customary Mixtures, per acre 10/6 &	11	6

FOR MEDIUM SOILS.

lbs.
7 .. Red Clover (*Trifolium pratense*).
1 ... Alsike Clover (*Trifolium hybridum*).
2 ... Trefoil or Hop (*Medicago lupulina*).
3 ... Perennial Rye Grass (*Lolium perenne*).
3 ... Italian Rye Grass (*Lolium Italicum*).
4 ... Cocksfoot (*Dactylis glomerata*).
1 ... Timothy (*Phleum pratense*).

	s.	d.
21 lbs. per acre, best quality, costing	14	6
21 lbs. per acre, good useful quality, costing	12	6
Customary Mixtures, per acre 10/6 to	11	6

FOR LIGHT SOILS.

lbs.
5 .. Red Clover (*Trifolium pratense*).
1 ... Alsike Clover (*Trifolium hybridum*).
2 ... Trefoil or Hop (*Medicago lupulina*).
3 ... Perennial Rye Grass (*Lolium perenne*).
4 ... Italian Rye Grass (*Lolium Italicum*).
5 ... Cocksfoot (*Dactylis glomerata*).
2 ... Timothy (*Phleum pratense*)

	s.	d.
22 lbs. per acre, best quality, costing	14	6
22 lbs. per acre, good useful quality, costing	12	6
Customary Mixtures, per acre 10/6 to	11	6

OTHER PRESCRIPTIONS FOR 1 YEAR'S LEY.

	Good useful quality. Per acre.	Seed tested for germination and purity. Per acre.
Mixed Clovers, Timothy, and Italian Rye Grass	12/0	14/0
Our Best Quality comprises 20 lbs. Tested Clovers, Timothy, and Grass Seeds per acre.		
Red Clover, Timothy, and Italian Rye Grass	14/0	16/0
Our Best Quality comprises 20 lbs. Tested Clovers, Timothy, and Grass Seeds per acre.		
Mixed Clovers, Timothy, and Common Rye Grass	10/6	13/6
Our Best Quality comprises 20 lbs. Tested Clovers, Timothy, and Grass Seeds per acre.		
Red Clover, Timothy, and Common Rye Grass	13/6	15/6
Our Best Quality comprises 20 lbs. Tested Clovers, Timothy, and Grass Seeds per acre.		
Hop Trefoil, or Nonsuch, Timothy and Rye Grass	—	11/0
16 lbs. Trefoil and Timothy and 1 peck Rye Grass per acre.		
Mixed Clover Seeds only	—	15/6
Comprising 16 lbs. per acre.		

Carters' Own Prescription of Grasses and Clovers to Repair Deficient Leys, see page 12.

Please state when ordering whether the crop is required principally for Grazing or for Mowing.

MESSRS. CARTERS' OWN PRESCRIPTIONS

FOR

2 YEARS' MOWING OR GRAZING.

COMPRISE—

FOR HEAVY SOILS.

lbs.		
5	...	Red Clover (*Trifolium pratense*).
1	..	White Clover (*Trifolium repens*).
2	...	Alsike Clover (*Trifolium hybridum*).
1	...	Trefoil or Hop (*Medicago lupulina*).
5	...	Perennial Rye Grass (*Lolium perenne*).
3	...	Italian Rye Grass (*Lolium Italicum*).
4	...	Cocksfoot (*Dactylis glomerata*).
2	...	Timothy (*Phleum pratense*).
1	...	Meadow Fescue (*Festuca pratensis*).

	s.	d.
24 lbs. per acre, best quality, costing	17	0
24 lbs. per acre, good useful quality, costing	15	6
Customary Mixtures, per acre	14	0

FOR MEDIUM SOILS.

lbs.		
5	...	Red Clover (*Trifolium pratense*).
1	...	White Clover (*Trifolium repens*).
2	...	Alsike Clover (*Trifolium hybridum*).
1	...	Trefoil or Hop (*Medicago lupulina*).
4	...	Perennial Rye Grass (*Lolium perenne*).
4	...	Italian Rye Grass (*Lolium Italicum*).
4	...	Cocksfoot (*Dactylis glomerata*).
2	...	Timothy (*Phleum pratense*).
1	...	Meadow Fescue (*Festuca pratensis*).

	s.	d.
24 lbs. per acre, best quality, costing	17	0
24 lbs. per acre, good useful quality, costing	15	6
Customary Mixtures, per acre	14	0

FOR LIGHT SOILS.

lbs.		
3	...	Red Clover (*Trifolium pratense*).
3	...	White Clover (*Trifolium repens*).
1	...	Alsike Clover (*Trifolium hybridum*).
2	...	Trefoil or Hop (*Medicago lupulina*).
4	...	Perennial Rye Grass (*Lolium perenne*).
3	...	Italian Rye Grass (*Lolium Italicum*).
5	...	Cocksfoot (*Dactylis glomerata*).
2	...	Timothy (*Phleum pratense*).
1	...	Meadow Fescue (*Festuca pratensis*).

	s.	d.
24 lbs. per acre, best quality, costing	17	0
24 lbs. per acre, good useful quality, costing	15	6
Customary Mixtures, per acre	14	0

3 OR 4 YEARS' MOWING OR GRAZING.

COMPRISE—

FOR HEAVY SOILS.

lbs.		
4	...	Perennial Red Clover (*Trifolium pratense perenne*).
1	...	Red Clover (*Trifolium pratense*).
1½	...	White Clover (*Trifolium repens*).
1	...	Alsike Clover (*Trifolium hybridum*).
7	...	Perennial Rye Grass (*Lolium perenne*).
2	...	Italian Rye Grass (*Lolium Italicum*).
4	...	Cocksfoot (*Dactylis glomerata*).
1½	...	Meadow Foxtail (*Alopecurus pratensis*).
3	...	Meadow Fescue (*Festuca pratensis*).
1	...	Sheep's Fescue (*Festuca ovina*).
4	...	Timothy (*Phleum pratense*).

	s.	d.
30 lbs. per acre, best quality, costing	21	0
30 lbs. per acre, good useful quality, costing	19	6
Customary Mixtures, per acre	18	0

FOR MEDIUM SOILS.

lbs.		
4	...	Perennial Red Clover (*Trifolium pratense perenne*).
2	...	Red Clover (*Trifolium pratense*).
2	...	White Clover (*Trifolium repens*).
1	...	Alsike Clover (*Trifolium hybridum*).
6	..	Perennial Rye Grass (*Lolium perenne*).
2	...	Italian Rye Grass (*Lolium Italicum*).
4	...	Cocksfoot (*Dactylis glomerata*).
1	...	Meadow Foxtail (*Alopecurus pratensis*).
3	..	Meadow Fescue (*Festuca pratensis*).
1	...	Sheep's Fescue (*Festuca ovina*).
4	...	Timothy (*Phleum pratense*).

	s.	d.
30 lbs. per acre, best quality, costing	21	0
30 lbs. per acre, good useful quality, costing	19	6
Customary Mixtures, per acre	18	0

FOR LIGHT SOILS.

lbs.		
3	...	Perennial Red Clover (*Trifolium pratense perenne*).
–	...	Red Clover (*Trifolium pratense*).
3	...	White Clover (*Trifolium repens*).
1	..	Alsike Clover (*Trifolium hybridum*).
8	...	Perennial Rye Grass (*Lolium perenne*).
2	...	Italian Rye Grass (*Lolium Italicum*).
5	...	Cocksfoot (*Dactylis glomerata*).
–	...	Meadow Foxtail (*Alopecurus pratensis*).
2	...	Meadow Fescue (*Festuca pratensis*).
2	...	Sheep's Fescue (*Festuca ovina*).
4	...	Timothy (*Phleum pratense*).

	s.	d.
30 lbs. per acre, best quality, costing	21	0
30 lbs. per acre, good useful quality, costing	19	6
Customary Mixtures, per acre	18	0

THE ABOVE TABLES ARE SUBJECT TO VARIATIONS TO MEET THE REQUIREMENTS OF PARTICULAR SOILS.

TEMPORARY PASTURES.

MESSRS. CARTERS' Special Prescriptions for HEAVY, MEDIUM, or LIGHT SOILS—

Prices from **15/-** to **25/-** per acre.

Specially prepared to suit all soils. *Contents of prescriptions on application.*

CARTERS', 237, 238, & 97, HIGH HOLBORN LONDON —1901.

PERMANENT PASTURES.

Extract from the Latest Edition of Messrs. Carters' "Practical Farmer," price, post free, **1s.**

GRATIS TO CUSTOMERS.

PERMANENT PASTURES.

For permanent pastures, the soil should he of such a texture as neither to part with moisture too readily nor to retain it so long as to become stagnant, and it ought to be sufficiently friable to allow of the free penetration of the finer roots of the grasses.

These conditions are best fulfilled when a good depth of mould rests upon a well-drained clay subsoil.

Although this combination is preferable when it can be secured, there is nevertheless much remunerative pasture under conditions which deviate considerably from those we have described, but which in many cases might be profitably made to correspond more closely to them.

When treating of the various soils hereafter, we shall mention the most economical methods of imitating these conditions, or how nearly they may be approached consistently with economy.

THE ADVANTAGES OF DRAINING AND LIMING.

As we shall presently have to recommend draining and liming in certain cases, we will here mention their advantages.

Drainage deepens the staple soil, so that water more freely percolates through it and superfluous water more readily leaves it. The roots of the grasses penetrate more easily, their feeding ground being thereby extended, whilst the formation of injurious chemical compounds such as are found in stagnant water is prevented.

By a greater depth of mould and more perfect disintegration the soil has an increased power of retaining moisture in dry weather. and has also a greater capacity for all manurial matters.

The temperature of the soil, and consequently that of the surrounding atmosphere, is raised.

By draining, mossy and rushy lands may be converted into valuable pastures, rendering them fit for the reception of the seeds of the finest grasses, which, without such a preparation, it would be comparatively useless to sow.

Lime is a beneficial application to a wide range of soils, and a large quantity of it may generally be profitably applied to land which has required draining.

From three tons on the lightest lands, to eight tons on those containing a large proportion of clay or humus, are the usual applications when preparing them for permanent pastures. After the formation of the pasture a much smaller quantity will need to be applied at one dressing, as it is not then possible to incorporate it with the soil by means of harrowing or other mechanical operations.

Lime favours the decomposition of organic matter. It neutralises acidity, and thus eliminates those worthless grasses and sour weeds which are favoured by such a condition of the soil. It assists in decomposing certain salts whose ingredients enter into the food of plants, and thus aids the nutrition of the crop.

On some soils the finer grasses will not thrive until the land has been limed, so that in these cases its use is most essential.

In addition to the operations of draining and liming, there are other processes which may be employed with advantage in altering the texture of soils—such, for instance, as clay-burning, which lessens tenacity, and green-manuring, which increases the vegetable matter. In some cases bulky materials, such as sand, peat or clay, may be found sufficiently near at hand to admit of their being used economically in altering the physical condition of soils. And, although such an operation might often be too expensive, we believe there is a great deal of work of this sort which might be profitably carried out, but which, either from want of knowledge or capital is seldom attempted.

THE PREPARATION OF THE LAND.

For no plants is a fine tilth more necessary than for permanent grasses. Their roots are so very delicate, and some of them go so short a distance in search of food, that their feeding-ground must be thoroughly well prepared by disintegration.

Draining, whether natural or artificial, is a most essential part of the preparation of land for permanent pasture, and in no other case will its good effect be more manifest. It is quite a mistaken idea that draining is of little or no use to grass land; on the contrary, it is a well-ascertained fact that the most valuable grasses will not thrive on undrained land.

The erroneous notion no doubt arises from the circumstance that a considerable bulk of grass or hay is obtained from undrained land; it should, however, be remembered that the quality is of a very inferior character.

The land should be clean, in fine tilth and good heart, and upon such land as it is practicable, these important points are most perfectly secured by feeding off a good clean crop of swedes with sheep, at the same time giving an allowance of decorticated cotton-cake. The fine tilth would be easily obtained, and the land, by the treading of sheep, is greatly benefited.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

PERMANENT PASTURES—*Continued.*

SOWING DOWN WITH A CORN CROP.

A point always open to consideration is, whether the grass seeds should be sown with or without a corn crop.

The advantages put forward as pertaining to the practice of sowing with a crop are, that the corn is a protection to the young grass, and that it will repay a part of the expense of putting in the grass seeds. With regard to the shelter afforded to the young grass by the corn, an extra bushel of grass seed would answer all the purpose, and have the additional advantage of thickening the sward. The prevailing idea is that the corn will repay a part of the expense, and at first sight the practice would appear to be reasonable; but there remains the risk of detracting from the success of the pasture by taking off a crop of corn, which, in times such as the present, realises a very small margin of profit.

We repeat it is very essential that permanent pasture should be put down in good heart; and corn, especially if allowed to ripen, removes from the soil a large quantity of the plant food which is so necessary to develop the grasses.

Although the loss of condition may be afterwards to some extent made good by the application of manure, still, the finer grasses sometimes receive a check from which they cannot always recover.

If, however, it is desired to sow the grass seeds with a corn crop, a decidedly light seeding of the latter should be given, so that the young grass plant may not be smothered.

Oats are sometimes sown with grass seeds and the crop cut early, by which means a large bulk of forage is secured, and the early cutting favours the development of the young grass plant.

THE SEEDING OF GRASS LANDS.

We now come to a very important point, namely, the selection and sowing of seeds. There are thousands of distinct species of grasses distributed over the world, and there is not a soil to which some of them are not indigenous—some growing best on dry sterile soils, others on rich soils; some thriving in marshes, stagnant water, or slow stream, others on the sea coast; but those which are suited for permanent pastures and alternate husbandry thrive best under cultivation, and are very limited in number. The varieties of grasses, &c., recommended, which are used more or less in our compositions, will be found on pages 8 and 9.

The varieties and quantities vary considerably according to the nature of the soil to be sown, and the success of the pasture will be in a great measure due to the skill exercised in deciding the varieties to be used and proportioning the amount of each variety. We have for many years followed a careful system of this kind, adapting the seeds to the geological requirements of the soil, which has proved successful in a degree probably beyond that of any other practice.

A well-constituted mixture for Permanent Pasture should for several reasons contain many varieties of grasses and clovers. We find that some sorts will thrive best in one season, others in another season. Some varieties extract from the soil plant food which would not be utilised by others. Some mature earlier than others, and stock of all kinds do better on a mixture of foods than when fed continually upon the same thing. So that a well-mixed pasture has the advantage of being earlier, lasting longer, and giving a heavier and better feed than one composed of a few sorts or a single variety of grass.

TIME OF SOWING.

The period for sowing grass seeds embraces a very wide range. It is really more a matter of weather than of anything else. We have, for instance, sown during every month from March to November inclusive.

When clovers are included in the mixture, it is well not to sow too late in the autumn, as the clover plants are more liable to injury by frost than are the young grasses.

Grass seeds with a corn crop may be sown simultaneously with the corn, or afterwards, when the corn is two or three inches high.

Dry weather is best for getting the seeds well in the ground.

It is known that many of the permanent grasses take three or four years to become fully developed, and that the parent plant of rye grass does good service during these earlier years. These characteristics seem to work together most economically for the production of a full hay crop during the first few years after laying down land to Permanent Pasture.

We have occasionally seeded down pastures, etc., in prominent public positions (notably at the Royal Agricultural Society's Show Ground, Kilburn, the Paris, Sydney, Vienna, Melbourne, Amsterdam, and other Exhibitions, etc.), which were admired for their general excellence, and when asked to explain how such a thick sward could be produced in so short a time, we instance fine tilth, good heart, cleanliness, and LIBERAL SEEDING as the main requisites. The more important points in which our treatment differs from ordinary methods, in addition to the above, lie in a careful adaptation of the seeds to the peculiar physical formation of the soil and the judicious proportion of quantities.

In sowing, we cannot too strongly urge the necessity of covering the ground evenly, every blank giving a chance for weeds to make their appearance. Such bare spaces should therefore be sown as soon as noticed. Here we see another advantage of sowing without a crop, or where the reverse has been done, of cutting early, for we find when this is not the case the bare places are invariably neglected. Sowing is best effected with the seed-barrow on a calm day, the light seed-harrow, chain-harrow, bush-harrow, horse-rake, or Cambridge roller being used to cover the seeds, the implements varying with the description of soil, and (unless where the Cambridge roller is used) a heavy flat roller finishing the operation. Where the land is very loose we recommend the use of a clod-crusher before sowing, to be followed by the bush-harrow after sowing. It is a good plan to wheel in the grass seeds by themselves in one direction, and then the clover seeds by themselves at right angles thereto; this secures uniformity of distribution.

A firm seed-bed is of vital importance, and in all cases, when the soil will admit, the land should be firmly rolled before harrowing, the seed then sown and afterwards rolled again. Many failures arise from a neglect of this practice, whilst the superior appearance of the headlands, where clovers and grasses have been recently sown, and where the surface is thus hardened by constant treading, drawing, etc., is the most practical evidence of the necessity for such treatment.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

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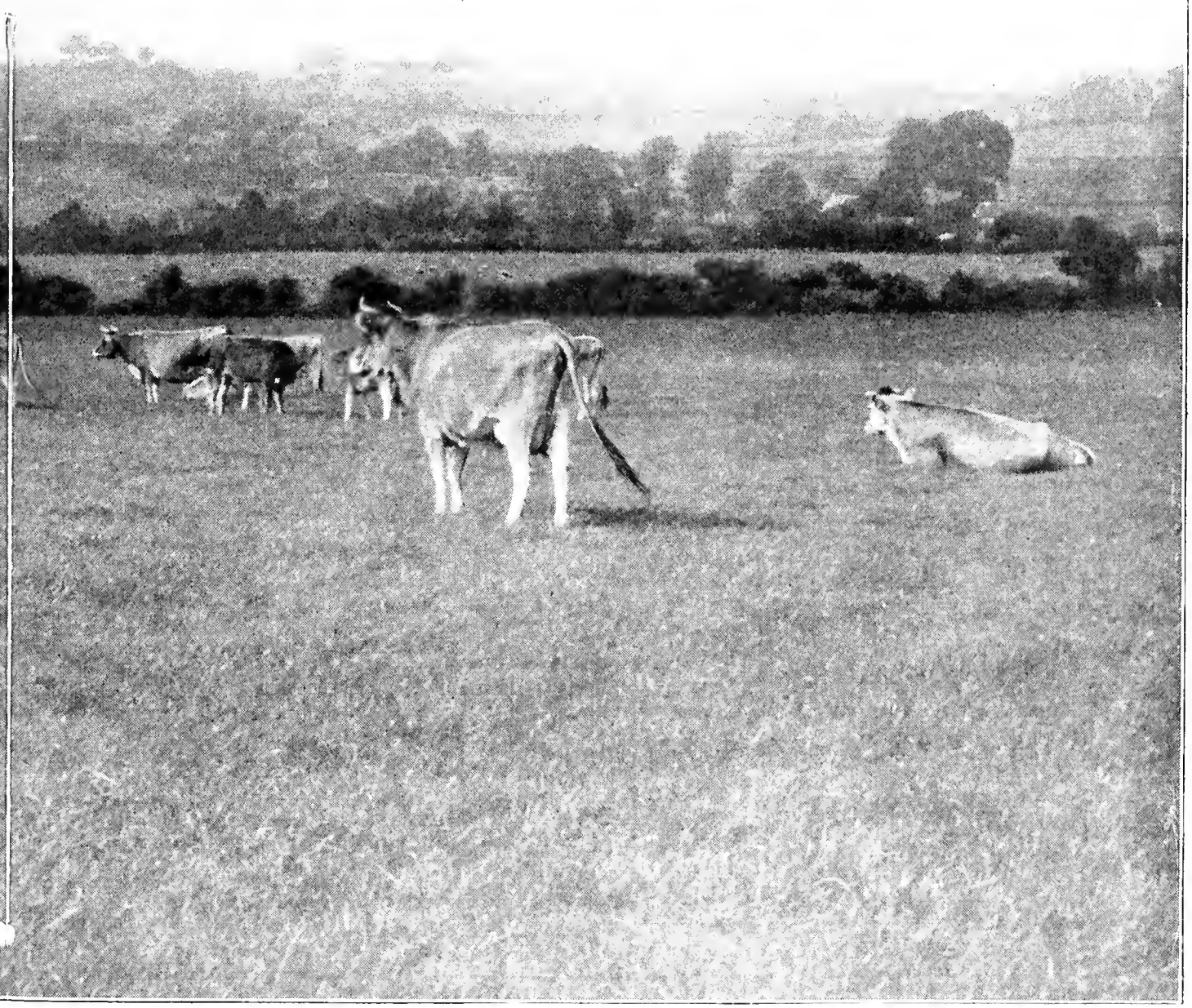
Carters' Tested Grass Seeds for Permanent Pastures, from
Carters' Tested Grass Seeds for Temporary Pastures, see
Carters' Prescriptions for 1, 2, or 3 years' ley, see pages
Carters' Tested Grass Seeds for Cricket, Golf, Recreation

HIGHEST AWARD FOR
GRASS IN GROWTH.

PARIS, 1900.



d by James Carter & Co.

om 17/6 to 37/6 per acre, see pages 8, 9, 10, and 11.
e page 3.
s 2 and 3.
n Grounds, and all kinds of Lawns, see page 13.

HIGHEST AWARD FOR GRASS IN GROWTH.

PARIS, 1900.

GRASS SEEDS

FOR

PERMANENT PASTURES,

SPECIALLY PREPARED FOR

HEAVY SOILS.

Arranged in proportions calculated to prevent the stronger growing species from smothering or killing out the fine kinds that thicken the herbage.

It is advantageous to customers when ordering Grass Seeds to state full particulars of the structure of the soil and aspect of the land. If a sample of the soil can be conveniently supplied it assists materially in the preparation of a prescription thoroughly adapted to the locality.

Quantity per acre.	FOR HEAVY CLAYS.
lbs.	
2	Fiorin (*Agrostis stolonifera*).
1	Foxtail (*Alopecurus pratensis*).
6	Cocksfoot (*Dactylis glomerata*).
1	Hard Fescue (*Festuca duriuscula*).
2	Tall Fescue (*Festuca elatior*).
6	Meadow Fescue (*Festuca pratensis*).
7	Perennial Rye Grass (*Lolium perenne*).
6	Timothy (*Phleum pratense*).
1	Rough Meadow Grass (*Poa trivialis*).
3	Perennial Red Clover (*Trifolium p. perenne*).
2	White Clover (*Trifolium repens*).
2	Alsike Clover (*Trifolium hybridum*).
1	Trefoil (*Medicago lupulina*).
40 lbs.	

Price per acre—	s.	d.
40 lbs. per acre, best quality, as above	37	6
40 lbs. per acre, useful quality, as above, 26s. to	30	0

Quantity per acre.	FOR GRAVELLY CLAYS.
lbs.	
1	Fiorin (*Agrostis stolonifera*).
2	Foxtail (*Alopecurus pratensis*).
1	Dogstail (*Cynosurus cristatus*).
6	Cocksfoot (*Dactylis glomerata*).
1	Hard Fescue (*Festuca duriuscula*).
1	Tall Fescue (*Festuca elatior*).
–	Sheep's Fescue (*Festuca ovina*).
8	Meadow Fescue (*Festuca pratensis*).
8	Perennial Rye Grass (*Lolium perenne*).
4	Timothy (*Phleum pratense*).
1	Rough Meadow Grass (*Poa trivialis*).
3	Perennial Red Clover (*Trifolium p. perenne*).
3	White Clover (*Trifolium repens*).
1	Alsike Clover (*Trifolium hybridum*).
40 lbs.	

Price per acre—	s.	d.
40 lbs. per acre, best quality, as above	37	6
40 lbs. per acre, useful quality, as above, 26s. to	30	0

Quantity per acre.	FOR STIFF LOAMS.
lbs.	
1	Fiorin (*Agrostis stolonifera*).
2	Foxtail (*Alopecurus pratensis*).
1	Dogstail (*Cynosurus cristatus*).
7	Cocksfoot (*Dactylis glomerata*).
1	Hard Fescue (*Festuca duriuscula*).
2	Tall Fescue (*Festuca elatior*).
7	Meadow Fescue (*Festuca pratensis*).
8	Perennial Rye Grass (*Lolium perenne*).
1	Rough Meadow Grass (*Poa trivialis*).
2	Perennial Red Clover (*Trifolium p. perenne*)
1	White Clover (*Trifolium repens*).
2	Alsike Clover (*Trifolium hybridum*).
5	Timothy (*Phleum pratense*).
40 lbs.	

Price per acre—	s.	d.
40 lbs. per acre, best quality, as above	37	6
40 lbs. per acre, useful quality, as above, 26s. to	30	0

THE ABOVE TABLES ARE SUBJECT TO VARIATIONS TO MEET THE REQUIREMENTS OF PARTICULAR SOILS.

WE ALSO SUPPLY CUSTOMARY MIXTURES at 17s. 6d. to 22s. PER ACRE.

For other Prescriptions for Heavy Soils, see page 11.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

GRASS SEEDS

FOR

PERMANENT PASTURES,

SPECIALLY PREPARED FOR

MEDIUM SOILS.

Arranged in proportions calculated to prevent the stronger growing species from smothering or killing out the fine kinds that thicken the herbage.

It is advantageous to customers when ordering Grass Seeds to state full particulars of the structure of the soil and aspect of the land. If a sample of the soil can be conveniently supplied it assists materially in the preparation of a prescription thoroughly adapted to the locality.

Quantity per acre.	FOR RICH LOAMY SOILS.
lbs.	
2	Foxtail (*Alopecurus pratensis*).
1	Dogstail (*Cynosurus cristatus*).
8	Cocksfoot (*Dactylis glomerata*).
1	Hard Fescue (*Festuca duriuscula*).
2	Tall Fescue (*Festuca elatior*).
8	Meadow Fescue (*Festuca pratensis*).
–	Sheep's Fescue (*Festuca ovina*).
7	Perennial Rye Grass (*Lolium perenne*).
5	Timothy (*Phleum pratense*).
1	Rough Meadow Grass (*Poa trivialis*).
2	Perennial Red Clover (*Trifolium p. perenne*).
2	White Clover (*Trifolium repens*).
1	Alsike Clover (*Trifolium hybridum*).
40 lbs.	

Price per acre—*s. d.*

40 lbs. per acre, best quality, as above **37 6**

40 lbs. per acre, useful quality, as above, 26s. to 30 0

Quantity per acre.	FOR MEDIUM LOAMY SOILS.
lbs.	
2	Foxtail (*Alopecurus pratensis*).
2	Dogstail (*Cynosurus cristatus*).
8	Cocksfoot (*Dactylis glomerata*).
2	Hard Fescue (*Festuca duriuscula*).
2	Tall Fescue (*Festuca elatior*).
6	Meadow Fescue (*Festuca pratensis*).
1	Sheep Fescue (*Festuca ovina*).
7½	Perennial Rye Grass (*Lolium perenne*).
4	Timothy (*Phleum pratense*).
½	Rough Meadow Grass (*Poa trivialis*).
2	Perennial Red Clover (*Trifolium p. perenne*).
2	White Clover (*Trifolium repens*).
1	Alsike Clover (*Trifolium hybriaum*).
40 lbs.	

Price per acre—*s. d.*

40 lbs. per acre, best quality, as above **37 6**

40 lbs. per acre, useful quality, as above, 26s. to 30 0

Quantity per acre.	FOR PEATY SOILS.
lbs.	
2	Foxtail (*Alopecurus pratensis*).
2	Dogstail (*Cynosurus cristatus*).
9	Cocksfoot (*Dactylis glomerata*).
2	Hard Fescue (*Festuca duriuscula*).
2	Tall Fescue (*Festuca elatior*).
6	Meadow Fescue (*Festuca pratensis*).
1	Sheep's Fescue (*Festuca ovina*).
1	Red Fescue (*Festuca rubra*).
7	Perennial Rye Grass (*Lolium perenne*).
3	Timothy (*Phleum pratense*).
1	Smooth Meadow Grass (*Poa pratensis*).
1	Perennial Red Clover (*Trifolium p. perenne*).
2	White Clover (*Trifolium repens*).
1	Alsike Clover (*Trifolium hybridum*).
40 lbs.	

Price per acre—*s. d.*

40 lbs. per acre, best quality, as above **37 6**

40 lbs. per acre, useful quality, as above, 26s. to 30 0

THE ABOVE TABLES ARE SUBJECT TO VARIATIONS TO MEET THE REQUIREMENTS OF PARTICULAR SOILS.

WE ALSO SUPPLY CUSTOMARY MIXTURES at 17s. 6d. to 22s. PER ACRE.

For other Prescriptions for Medium Soils, see page 11.

HIGHEST AWARD FOR GRASS IN GROWTH.

PARIS, 1900.

GRASS SEEDS

FOR

PERMANENT PASTURES,

SPECIALLY PREPARED FOR

LIGHT SOILS.

Arranged in proportions calculated to prevent the stronger growing species from smothering or killing out the fine kinds that thicken the herbage.

It is advantageous to customers when ordering Grass Seeds to state full particulars of the structure of the soil and aspect of the land. If a sample of the soil can be conveniently supplied it assists materially in the preparation of a prescription thoroughly adapted to the locality.

Quantity per acre.	FOR CHALK SOILS.
lbs.	
1	Foxtail (*Alopecurus pratensis*).
2	Dogstail (*Cynosurus cristatus*).
8	Cocksfoot (*Dactylis glomerata*).
2	Hard Fescue (*Festuca duriuscula*).
2	Tall Fescue (*Festuca elatior*).
5	Meadow Fescue (*Festuca pratensis*).
1	Sheep's Fescue (*Festuca ovina*).
1	Red Fescue (*Festuca rubra*).
8	Perennial Rye Grass (*Lolium perenne*).
4	Timothy (*Phleum pratense*).
2	Smooth Meadow Grass (*Poa pratensis*).
1	Perennial Red Clover (*Trifolium p. perenne*).
1	White Clover (*Trifolium repens*).
1	Alsike Clover (*Trifolium hybridum*).
1	Suckling Clover (*Trifolium minus*).
40 lbs.	

Price per acre—s. d.

40 lbs. per acre, best quality, as above 37 6

40 lbs. per acre, useful quality, as above ... 26s. to 30 0

Quantity per acre.	FOR THIN LOAMS.
lbs.	
1	Foxtail (*Alopecurus pratensis*).
2	Dogstail (*Cynosurus cristatus*).
9	Cocksfoot (*Dactylis glomerata*).
2	Hard Fescue (*Festuca duriuscula*).
2	Tall Fescue (*Festuca elatior*).
4	Meadow Fescue (*Festuca pratensis*).
1	Sheep's Fescue (*Festuca ovina*).
1	Red Fescue (*Festuca rubra*).
7	Perennial Rye Grass (*Lolium perenne*).
3	Timothy (*Phleum pratense*).
2	Smooth Meadow Grass (*Poa pratensis*).
2	Perennial Red Clover (*Trifolium p. perenne*).
1	White Clover (*Trifolium repens*).
2	Alsike Clover (*Trifolium hybridum*).
1	Suckling Clover (*Trifolium minus*).
40 lbs.	

Price per acre—s. d.

40 lbs. per acre, best quality, as above 37 6

40 lbs. per acre, useful quality, as above ... 26s. to 30 0

Quantity per acre.	FOR SANDY SOILS.
lbs.	
1	Foxtail (*Alopecurus pratensis*).
2	Dogstail (*Cynosurus cristatus*).
9	Cocksfoot (*Dactylis glomerata*).
2	Hard Fescue (*Festuca duriuscula*).
1	Tall Fescue (*Festuca elatior*).
4	Meadow Fescue (*Festuca pratensis*).
1	Sheep's Fescue (*Festuca ovina*).
1	Red Fescue (*Festuca rubra*).
7	Perennial Rye Grass (*Lolium perenne*).
4	Timothy (*Phleum pratense*).
3	Smooth Meadow Grass (*Poa pratensis*).
1	Perennial Red Clover (*Trifolium p. perenne*).
2	White Clover (*Trifolium repens*).
1	Alsike Clover (*Trifolium hybridum*).
1	Suckling Clover (*Trifolium minus*).
40 lbs.	

Price per acre—s. d.

40 lbs. per acre, best quality, as above 37 6

40 lbs. per acre, useful quality, as above ... 26s. to 30 0

THE ABOVE TABLES ARE SUBJECT TO VARIATIONS TO MEET THE REQUIREMENTS OF PARTICULAR SOILS.

WE ALSO SUPPLY CUSTOMARY MIXTURES at 17s. 6d. to 22s. PER ACRE.

For other Prescriptions for Light Soils, see page 11.

GRASS SEEDS

FOR

PERMANENT PASTURES

WITHOUT RYE GRASS.

HIGHEST AWARD FOR GRASS IN GROWTH.

PARIS, 1900.

It is advantageous to customers when ordering Grass Seeds to state full particulars of the structure of the soil and aspect of the land. If a sample of the soil can be conveniently supplied it assists materially in the preparation of a prescription thoroughly adapted to the locality.

Quantity per acre.	FOR HEAVY SOILS.
lbs.	
2	Fiorin (*Agrostis stolonifera*).
3	Meadow Foxtail (*Alopecurus pratensis*).
2	Crested Dogstail (*Cynosurus cristatus*).
8	Cocksfoot (*Dactylis glomerata*).
2	Hard Fescue (*Festuca duriuscula*).
2	Tall Fescue (*Festuca elatior*).
7	Meadow Fescue (*Festuca pratensis*).
1	Sheep's Fescue (*Festuca ovina*).
5	Timothy (*Phleum pratense*).
1	Rough Stalked Meadow Grass (*Poa trivialis*).
3	Perennial Red Clover (*Trifolium pratense perenne*).
2	White Clover (*Trifolium repens*).
1	Alsike Clover (*Trifolium hybridum*).
1	Sheep's Parsley (*Petroselinum sativum*).
40 lbs.	

Price per acre—s. d.

40 lbs. per acre best quality, as above, price 41 6

Quantity per acre.	FOR MEDIUM SOILS.
lbs.	
3	Meadow Foxtail (*Alopecurus pratensis*).
½	Sweet Scented Vernal (*Anthoxanthum odoratum*).
2	Crested Dogstail (*Cynosurus cristatus*).
8	Cocksfoot (*Dactylis glomerata*).
1	Hard Fescue (*Festuca duriuscula*).
3	Tall Fescue (*Festuca elatior*).
8½	Meadow Fescue (*Festuca pratensis*).
1	Sheep's Fescue (*Festuca ovina*).
5	Timothy (*Phleum pratense*).
1	Rough Stalked Meadow Grass (*Poa trivialis*).
3	Perennial Red Clover (*Trifolium pratense perenne*).
2	White Clover (*Trifolium repens*).
1	Alsike Clover (*Trifolium hybridum*).
1	Sheep's Parsley (*Petroselinum sativum*).
40 lbs.	

Price per acre—s. d.

40 lbs. per acre, best quality, as above, price 42 6

Quantity per acre.	FOR LIGHT SOILS.
lbs.	
1	Meadow Foxtail (*Alopecurus pratensis*).
½	Sweet Scented Vernal (*Anthoxanthum odoratum*).
3	Crested Dogstail (*Cynosurus cristatus*).
9	Cocksfoot (*Dactylis glomerata*).
2	Hard Fescue (*Festuca duriuscula*).
3	Tall Fescue (*Fescue elatior*).
5	Meadow Fescue (*Festuca pratensis*).
2	Sheep's Fescue (*Festuca ovina*).
1	Red Fescue (*Festuca rubra*).
4	Timothy (*Phleum pratense*).
2	Smooth Stalked Meadow Grass (*Poa pratensis*).
1	Perennial Red Clover (*Trifolium pratense perenne*).
2	White Clover (*Trifolium repens*)
1	Alsike Clover (*Trifolium hybridum*).
½	Birdsfoot Trefoil (*Lotus corniculatus*).
1	Yarrow (*Achillea Millefolium*).
1	Suckling Clover (*Trifolium minus*).
1	Lucerne (*Medicago sativa*).
40 lbs.	

Price per acre—s. d.

40 lbs. per acre, best quality, as above, price 43 6

THE ABOVE TABLES ARE SUBJECT TO VARIATIONS TO MEET THE REQUIREMENTS OF PARTICULAR SOILS.

GRASS SEEDS FOR VARIOUS PURPOSES.

	Per acre. s.	d.
Carters' Grass Seeds for Black Soils	37	6
Carters' Grass Seeds for Sharp Gravels	37	6
Carters' Grass Seeds for Marsh and Heath Lands	34	6
Carters' Grass Seeds for Chalk Uplands	37	6
Carters' Grass Seeds for Water or Flooded Meadows	34	0
Carters' Grass Seeds for Mossy Grounds	34	0
Carters' Grass Seeds for Orchards and Shaded Places	36	0
Carters' Grass Seeds for Sewage Lands	34	0

	s.	d.
Carters' Grass Seeds for Loose Sands ... ... per acre	34	0
Carters' Grass Seeds for Railway Embankments, &c. Per bushel.	6	0
Carters' Grass Seeds for Churchyards	18/6 to 22	6
Carters' Grass Seeds for Cemeteries	18/6 to 22	6
Carters' Grass Seeds for Woodland Walks ...	18/6 to 22	6
Carters' Grass Seeds for Coverts	7	0
Carters' Grass Seeds for Rabbit Warrens	7	0
Carters' "Invicta" Lawn Seeds (see pages 13, 14, & 15) 1/3 per lb	25	0

We always send best quality unless otherwise instructed.

CARTERS' 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

RENOVATING GRASSES AND CLOVERS.

Photographed and Copyrighted by James Carter & Co.

Composed of those species of permanent Grass Seeds and Clovers that are best suited for sowing on thin Meadows or worn-out Pastures, and that will speedily improve the quality and increase the produce.

The renovation of grass lands is a matter of high importance.

Suppose, for example, a piece of grass land has become mossy and foggy, it requires some special treatment to restore it to its former freshness, and we recommend the following plan as generally applicable. Put the heavy harrows over the ground in different directions until all the moss and rough herbage have been loosened; collect this with a horse-rake and remove it, give a liberal dressing of a good compost, such as earth and lime, and drill-in a specially-prepared mixture of seeds, about 6 to 12 lb. per acre, weighting the coulters well, and finish off with the roller. Possibly this plan is known to and adopted by many, but, as we are frequently asked how to apply our renovating seed, it has occurred to us that some difficulty is experienced on the subject, and we take this opportunity of suggesting what, from our knowledge, we find to be the best method.

Another plan is that of penning sheep very closely for a night over the newly-sown seed, which answers very well where there is only a small quantity of land to go over. Of course it will be advisable to attend to manuring after this operation to render the good effects more lasting.

Another desirable plan for getting rid of moss is by penning sheep fed with swedes, cake, or corn, regularly over the field.

These methods will only apply where the moss is due to want of fertility, but in addition to this, should the land be damp, draining will have to be the first part of the treatment.

It is not always possible to thoroughly renovate old pastures. When they become hide-bound, for instance, it will be more expedient to break them up, and this is best done by paring and burning. A crop of roots should then be taken, and the land again seeded down.

Newly laid down Grass that is thin from local causes can be readily brought into a proper condition by the addition of a few pounds of Renovating Seeds per acre. A little scratching with a harrow, one way before putting the seed in and crossways afterwards, followed by a good rolling, is all the cultivation that is necessary.

	Per lb.	Per cwt.
CARTERS' RENOVATING GRASSES AND CLOVERS—Fine growing varieties	1/1	115/-
CARTERS' RENOVATING GRASSES AND CLOVERS Coarser growing varieties	1/-	108/-
CARTERS' RENOVATING GRASSES AND CLOVERS—Without Rye Grass	1/1	115/-

MIXED HAY SEEDS.

We are in a position to offer Hay Seeds containing a mixture of all sorts of Grasses. It has been analysed by our resident Botanist, and found to contain many nutritious and permanent Grasses, such as Perennial Rye Grass, Italian Rye Grass, Cocksfoot, Timothy, various Fescues, and Poas, Red, White, and Alsike Clover, &c., &c., and some Weed Seeds.

We wish to point out that this is a mixture which it is impossible to machine-clean, so that the Weeds natural to Old Grass Land remain in.

For Railway Embankments, Rough Lands, and for seeding unprofitable land in the most economical manner, the mixture will be found useful, and, from this point of view, is of exceeding good value.

"In 1894, I laid down 12 acres of poor land with your 'Mixed Hay Seeds,' and have now, to the astonishment of my neighbours, a good meadow."—H. M.

"The ton of Mixed Hay Seeds I purchased in the Spring germinated well, and the plant now looks promising, containing a mixture of several sorts of Clovers and Grasses. I consider it a cheap mixture, and likely to prove useful at the present time in reducing the cost of cultivating poor land."—H. P.

Sow 40 lbs. per acre.

Price 14/- per acre.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

GRASS SEEDS.

Lawns and Recreation Grounds.

SPECIALLY PREPARED FOR SUBURBAN AND COUNTRY LAWNS, AS SUPPLIED TO THE ROYAL GARDENS AT WINDSOR CASTLE AND BUCKINGHAM PALACE, SANDRINGHAM, ROYAL PARKS OF LONDON, CRYSTAL PALACE, &c., &c.

With or Without Clover.— Price 25s. per bushel of 25 lbs.; 3s. 3d. per gallon; 1s. 3d. per lb.; 1s. per packet.

One lb. of seed will sow 1 rod of new ground (6 yards by 5), or 4 bushels will sow 1 acre of new ground; one-fourth to one-half this quantity is sufficient for repairing a worn lawn.

Our prescriptions are composed only of the greatest wear-resisting species of fine growth, and are specially prescribed to suit all soils.

Tennis, Croquet, and Bowling Greens.

Price 25s. per bushel; 3s. 3d. per gallon; 1s. 3d. per lb.

To form a new Tennis Lawn of the regulation size (78 feet by 36 feet), with a margin for running back, 1 bushel of seed is required. For mending a worn ground, one-fourth to one-half this quantity of seed is desirable.

Cricket Grounds.

Price 25s. per bushel; 3s. 3d. per gallon; 1s. 3d. per lb.

The seed may be sown on a new ground at the rate of 4 bushels per acre, as soon as we are in touch with spring—after the March winds have spent their force. On a worn ground, where the grass is thin, the seeds may be sown during February and March, at the rate of 1 to 2 bushels per acre, and the pitch should be ready to play on as soon as the season opens. Used at Lord's and the Oval.

Under Trees or in Shaded Places.

We are frequently asked for a prescription of Grass Seeds that will produce herbage likely to thrive in situations generally denuded of growth, such as under Trees or on Lawns that are in a confined place, and upon which the sun and air cannot exert their influences. It would be presumption on our part to lead our customers to believe that we can cover such spots with a close velvety turf such as exists in the more exposed portions of their Lawn. At the same time, there is no getting away from the fact that certain grasses will thrive in shaded situations, as witness the close undergrowth in old copses, along green drives, and under established plantations, where is frequently to be found quite a verdant carpet. The soil under overshadowing trees is generally of the poorest description, the roots having taken all the nourishment out of it. Constant dripping from the branches is very detrimental to grass under the trees as it rots their fibrous roots, and the growth wilts away.

Price 25s. per bushel; 3s. 3d. per gallon; 1s. 3d. per lb; 1s. per packet.

Golf Links.

We have on our permanent staff a certificated botanist and expert in grasses who has already visited many of the leading golf links in the country. He is always able to give useful hints to those in charge of the greens, &c., as to the grasses that are likely to wear and thrive successfully, and the manures that will give the most beneficial results upon the soil of the locality. We charge his out-of-pocket expenses only, when sent to advise.

Carters' Special Prescription of close-growing grasses for putting greens contains the finest-leaved grasses only, mixed in proportion to suit the particular soil upon which seeds are intended to be sown. It is an advantage in the preparation of the prescription if we can have a turf from the green for analysis. This enables us to send the same species that are natural to the locality. The putting green can then be renovated with grasses of the same texture and colour as already exist. It is very important that we should see either the green or a turf.

For Golf Courses.

Not quite so fine leaved as for putting greens.
Price 25s. per bushel; 3s. 3d. per gallon; 1s. 3d. per lb.

For Putting Greens.

Price 1s. 6d. per lb.; 4s. per gallon; 30s. per bushel of 25 lbs.

For Football Ground.

Strong grasses to resist the wear and tear.
Price 25s. per bushel; 3s. 3d. per gallon; 1s. 3d. per lb.

MANURES FOR STIMULATING GRASS, &c.

The following special prescriptions are based upon many years' experience, and are most useful for the purpose of imparting vigour, closeness, and colour.

CARTERS' LAWN MANURE. No. 1 Mixture.

For Top Dressing or Raking In. For general purposes on Old and New Lawns.

Directions for using Carters' Lawn Manure.—For putting down a New Lawn, it should be sown as soon as the ground is thoroughly prepared for the seed, and raked in, care being taken to sow it as evenly as possible, as the appearance of the Lawn will be materially affected by this.

For Top Dressing, it should be sown immediately after cutting the grass, and, if possible, just before a shower of rain. If the weather is dry, water the Lawn after top dressing. This manure will be found very effective and lasting.

Price in Bags—14 lb., 4s.; ¼ cwt., 7s.; ½ cwt., 10s.; 1 cwt., 18s.; Tins, 1s., 2s., and 3s. each.

CARTERS' SPECIAL GRASS MANURE. No. 2 Mixture.

For Top Dressing only. For thickening Cricket Pitches, Tee Pieces, Putting Greens, &c., and checking the growth of Weeds.

This Manure is recommended for top dressing only, and should be sown immediately after the grass has been mowed, and, if possible, just before a shower of rain, but should the weather be very dry it is advisable to thoroughly water the ground after applying the Manure. Old and deep-rooted weeds should be cut out or destroyed, but all Seedling Weeds will rapidly deteriorate under the influence of this preparation. Apply at the rate of 2 ozs. to the square yard.

On poor soils we recommend an alternate dressing of our No. 1 and No. 2 Mixtures, or an Autumn or Early Spring dressing of the former: for putting down a New Lawn, we advise our No. 1 Mixture. This should be sown as soon as the ground is prepared and levelled for the seed, and raked in, care being taken to sow it as evenly as possible, as the appearance of the Lawn will be materially affected by this.

Carters' Special Grass Manure discourages the growth of all weeds, stimulates and improves the growth of the grass, and produces a sward of a rich Emerald Green Colour. The manager at the Oval pronounces this Manure as the best dressing he has ever applied, and claims that the splendid condition of the ground during the past few seasons is due to its efficacy.

Price in Sealed Bags—14 lbs., 5s. 6d.; ¼ cwt., 9s. 6d.; ½ cwt., 15s. 6d.; 1 cwt., 25s.; Trial Boxes, 2s. 6d.

CARTERS' FERTILISING FIBRE.

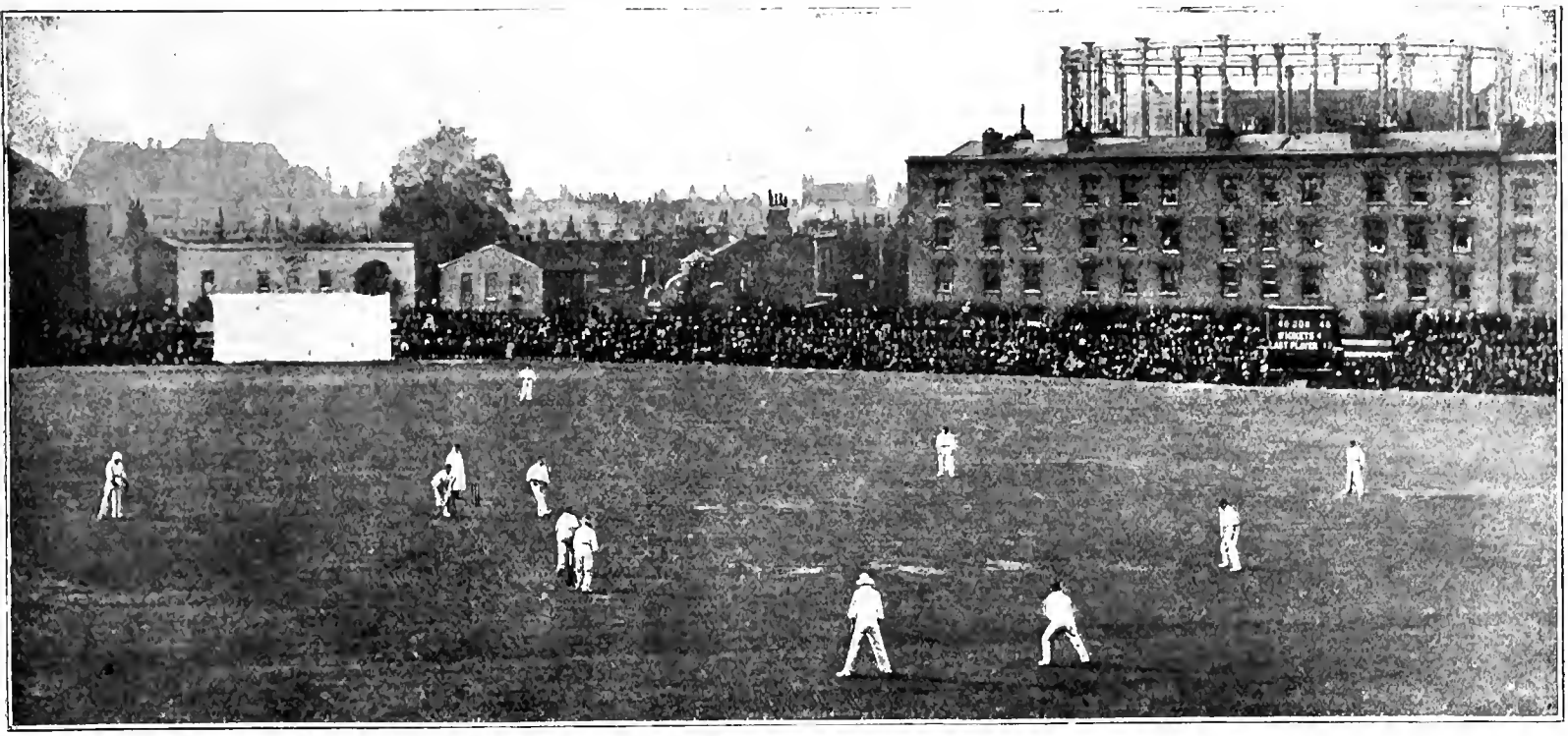
A combined covering and stimulating material for Newly Sown Grass and other Seeds. A perfect substitute for Earth, and being an absorbent more readily retains the necessary moisture for the use of the young Seedlings.

Price in Sealed Bags of 5 Bushels—per Bag, 7s. 6d.; per 5 Bags, 32s. 6d.; per 10 Bags, 60s.
A 5-Bushel Bag will cover a space of about 20 square yards at a depth of ½ inch on a level surface. Trial Bags, 2s., Carriage Free.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' GRASS SEEDS

FOR TENNIS LAWNS, BOWLING GREENS, AND CROQUET LAWNS.



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YORKSHIRE *v.* SURREY AT THE OVAL, 1900.

NO OTHER GRASS SEEDS BUT CARTERS' ARE USED AT THE OVAL.

We have on our permanent staff a Certificated Botanist, and expert in grasses, who has already visited many of the leading golf links, cricket, and other recreation grounds in the country. He is always able to give useful hints to those in charge as to the grasses likely to wear and thrive successfully, and the manures that will give the most beneficial results upon the soil of the locality. We charge his out-of-pocket expenses only when sent to advise.

CARTERS' GRASS SEEDS FOR CRICKET GROUNDS. Price, 1/3 per lb.; 25/- per bushel *(see also page 13).*

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THE FIRST RUGBY MATCH OF THE SEASON—BLACKHEATH *v.* OLD LEYSIANS.

CARTERS' GRASS SEEDS ARE SUPPLIED TO THE RECTORY FIELD, BLACKHEATH.

CARTERS' GRASS SEEDS FOR FOOTBALL GROUNDS. Price, 1/3 per lb.; 25/- per bushel (*see also page 13*).

CARTERS' GRASS SEEDS.

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"Diamond Jubilee" Winning the Two Thousand Guineas Race, 1900.

CARTERS' GRASS SEEDS ARE USED ON NEWMARKET RACECOURSE.

CARTERS' GRASS SEEDS FOR RACECOURSES, CAMPING OR RECREATION GROUNDS.

Price, 1/3 per lb.; 25/- per bushel (*see also page 13*).

Photo by Turner & Co., Barnsbury.

Seventh Green, Richmond.

Photo by Robinson & Thompson, Birkenhead.

Punchbowl, Hoylake.

CARTERS' GRASS SEEDS FOR GOLF LINKS AND PUTTING GREENS. SOWN BY ALL THE LEADING CLUBS.

CARTERS' GRASS SEEDS FOR GOLF COURSES.

Price, 1/3 per lb.; 25/- per bushel (*see also page 13*).

CARTERS' GRASS SEEDS FOR PUTTING GREENS.

Price, 1/6 per lb.; 30/- per bushel (*see also page 13*).

CARTERS' DESIRABLE PERMANENT GRASSES

OF TESTED AND GUARANTEED QUALITY, used in the formation of

GOOD PERMANENT PASTURES.

☞ For full descriptions of the following, many of which are beautifully illustrated, see Carters' "Practical Farmer," price 1s., post free—Gratis to purchasers of Grass Seeds.

	Guaranteed Quality. Per Pound. s. d.	Natural Quality. Per Pound. s. d.
Crested Dogstail Grass (*Cynosurus cristatus.*) Germination of guaranteed quality, 90 %	2 6	.....
Cocksfoot, or Orchard Grass (*Dactylis glomerata*) ... ... Germination of guaranteed quality, 90 %	1 3	0 11
Evergreen Meadow Grass (*Poa nemoralis sempervirens*)	2 9	1 9
Fiorin, or Marsh Bent Grass (*Agrostis stolonifera*) ... ... Germination of guaranteed quality, 90 %	1 0	.....
Golden Oat Grass (*Avena flavescens*) Germination of guaranteed quality, 60 %	4 6	.....
Hard Fescue Grass (*Festuca duriuscula*) Germination of guaranteed quality, 80 %	1 2	0 10
Meadow Fescue, or Sweet Grass (*Festuca pratensis*) ... ... Germination of guaranteed quality, 90 %	1 4	1 1
Meadow Foxtail (*Alopecurus pratensis*) ... Germination of guaranteed quality, 80 %	1 4	1 2
Red, or Land Fescue Grass (*Festuca rubra*) ... ... Germination of guaranteed quality, 80 %	1 3	0 10
Reed or Wood Fescue Grass (*Festuca sylvatica*)	1 6	.....
Rough-Stalked Meadow Grass (*Poa trivialis*) ... ... Germination of guaranteed quality, 70 %	1 8	1 4
Smooth-Stalked Meadow Grass (*Poa pratensis*)	1 2	0 11

	Guaranteed Quality. Per Pound. s. d.	Natural Quality. Per Pound. s. d.
Sweet-Scented Vernal Grass (*Anthoxanthum odoratum*) ... Germination of guaranteed quality, 60 %	5 0	.....
Tall Fescue Grass (*Festuca elatior*) Germination of guaranteed quality, 90 %	1 6	1 1
Tall Oat Grass (*Avena elatior*) Germination of guaranteed quality, 80 %	1 6	1 0
Tall Sheep's Fescue Grass (*Festuca ovina pseudo tenuifolia*) ... Germination of guaranteed quality, 80 %	1 3	1 0
Timothy, or Meadow Catstail Grass (*Phleum pratense*)... Germination of guaranteed quality, 95 %	0 8	0 6
True Sheep's Fescue Grass (*Festuca ovina tenuifolia*) ... Germination of guaranteed quality, 70 %	1 9	1 4
Various Leaved Fescue (*Festuca heterophylla.*)	1 4	1 1
Wood Meadow Grass ... (*Poa nemoralis.*)	2 9	1 9
Italian Rye Grass	(*See pages* 18 & 19.)	
Perennial Rye Grass ...	(*See pages* 20 & 21.)	
Sea Reed Grass (*Ammophila arundinacea*)...	(*See page* 66.)	
Upright Sea Lyme Grass (*Elymus arenarius*)	(*See page* 66.)	
Yarrow or Milfoil (*Achillea millefolium*) Germination of guaranteed quality, 60 %	.....	6 6

☞ Special low prices always charged per ½ Cwt. or per Cwt.

CARTERS' CLOVER SEEDS.

Photographed and Copyrighted by James Carter & Co.

Our Clover Seeds have acquired a great reputation among Flockmasters and Agriculturists generally. In addition to securing the finest samples, we clean and dress the Seeds to the highest degree of perfection, all Weeds, small and imperfect Seeds, and foreign substances of every description being removed by the use of the newest and most improved Machinery. The Bulks are afterwards submitted to thorough tests to prove the germinating qualities and purity to be equal to the standard we undertake to supply.

Our Resident Analyst has proved our stocks of Clovers to be practically pure, and having thoroughly tested the germinating powers, we guarantee the best qualities to germinate from 90 to 95 per cent.

See CARTERS' "PRACTICAL FARMER," in which several of the leading Clovers are beautifully Illustrated, price 1s., post free. Gratis to buyers of Grass and Clover Seeds.

	PRICE.		
	Per lb. s. d.	Per cwt. s. d.	Per bushel of 60 lbs. s. d.
Broad Red Clover *(see Illustration, page 26)*	0 9	82 0	44 0
	0 11	98 0	52 6
	1 1	115 0	61 8
White Clover *(see Illustration, page 27)*	0 11½	103 0	55 6
	1 1	115 0	61 8
	1 3	135 0	72 4
Alsike Hybrid Clover *(see Illustration, page 28)*	0 11½	103 0	55 6
	1 1	115 0	61 8
	1 3	135 0	72 4
Yellow Trefoil, Nonsuch, or Hop Clover	0 6½	57 6	31 0
	0 7	60 0	32 2
	0 8½	75 0	40 6
Cow Grass, single cut	1 3	135 0	72 4
	1 4	145 0	77 8
	1 6	158 0	84 8
Giant Hybrid Red Clover	1 0	108 0	57 10
	1 1	115 0	61 8
	1 3	135 0	72 4
Cow Grass	1 0	108 0	57 10
	1 2	125 0	67 0
Carters' Giant White Perennial Clover	1 4	145 0	77 8
	1 6	158 0	84 8
Lucerne	0 10	88 0	—
	1 0	108 0	—
Trifolium incarnatum (price upon application)	—	—	—
Yellow-flowered Suckling Clover	0 7	—	—
Mixed Perennial Clovers	1 3	—	—
Meliolotus leucantha (Sweet-scented Clover, for Bees)	1 6	—	—
Birdsfoot Trefoil (*Lotus corniculatus*)	1 6	—	—

For Sundry Agricultural Seeds, see pages 66 and 67.

We always send the best quality in Clover Seed unless otherwise instructed.

Drawn from Nature and Copyrighted by James Carter & Co.

ITALIAN RYE GRASS.

(Lolium Italicum.)

NOTE that this is a larger and more robust plant than Perennial Rye Grass, and that it differs also from the latter in having an *awn* or bristle on each floret. Consequently the "seed," which is really the dried floret, is likewise *awned*, and thus differs from the "seed" of Perennial Rye Grass. The foliage is bright, and glistens in the sunshine. Each leaf has a prominent *midrib* (as in Perennial Rye Grass); it is well shown in the transverse section of the leaf given in the top right-hand corner. Italian Rye Grass is sown largely on temporary layers in alternate husbandry. It thrives amazingly on sewage farms and on irrigated soils.

For Prices and Particulars see opposite page.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' ITALIAN RYE GRASS.

LOLIUM ITALICUM. (See illustration facing.)

Italian Rye Grass is larger and altogether more robust than perennial Rye Grass, and it is always awned, whilst perennial Rye Grass seldom has any awns on the florets.

It may be cultivated successfully upon as wide a range of soils as any of our forage plants, but gives the heaviest returns upon those which are well drained, deeply cultivated, and somewhat tenacious in texture.

For some time it was only used in mixtures with other grasses and clovers for pasturage, but is now a fashionable forage crop, sown alone, and for which purpose, on account of its early and rapid growth, it is admirably adapted. It is, however, in the application of this grass to the requirements of sewage farming and of irrigated grass land generally that *Lolium Italicum* has become of first importance. The enormous crop of Carters' Italian Rye Grass produced during the past few years upon the Aldershot, Beeston, Birmingham, Romford, Barking, Leamington, Croydon, Doncaster, Wrexham, Eton, Nottingham, Bedford, Northampton, Barnet, and other leading Sewage Farms is unapproached by the yield of any other green forage crop.

Italian Rye Grass may be sown from early spring till late autumn at the rate of four bushels per statute acre.

If sown sufficiently early in autumn it will often give a cut before winter.

The ground should be well prepared by the application of as much farmyard manure as the plough will turn under. At seed-time, and immediately after each cutting, where liquid manure or sewage is not available, such portable manure as spring top-dressing, nitrate of soda, guano, or, indeed, any manure containing a large percentage of really available ammonia, may be applied.

The surface should be finely tilled and well consolidated, a good plan being to finish the tillage operations with the Cambridge roller, and to sow the seed in the furrows by that implement, then cover lightly with a bush-harrow, and finish off with a light roller if the weather is dry.

With regard to the quantity of produce, 10 tons per acre have been cut six weeks after sowing. In the ordinary way about four or five cuttings may be made, giving 8 or 10 tons at each cutting, but under irrigation or sewage, as many as eight or ten cuttings may be taken, giving about 10 tons at each cutting. Thus we find that about *ninety tons* per acre per annum may be taken as the average produce under sewage or irrigation.

Italian Rye Grass is very nutritious, is eaten greedily by all kinds of stock, and, although very succulent, it does not scour the animals. By its use a large number of stock may be kept from a comparatively limited space of ground.

It should be mown just as the ear is beginning to show, and, if not allowed to seed, will prove of great value the second year, and is, moreover, earlier, except in cold, wet, spongy soils. Although *Lolium Italicum* is, strictly speaking, an annual, yet where it is regularly mown and not allowed to flower it will persist for several years.

If it is required for the formation of flesh or muscle, as in growing or working animals, it should be cut more frequently than where it is given to milch cows or fattening animals.

It is especially suitable for dairying, as securing through about nine months of the year a constant supply of succulent food.

Cows will generally consume about 100 lb. a day, with more or less corn or cake; fattening beasts require about the same quantity with rather more corn or cake; sheep will eat from 10 lb. to 15 lb. a day.

Italian Rye Grass is often sown with *Trifolium hybridum* (Alsike), and *Trifolium incarnatum* (Crimson Clover), sometimes with *Dactylis glomerata* (Cocksfoot), or *Phleum pratense* (Timothy).

The weed and other seeds usually found in unclean samples of Italian Rye Grass are: *Holcus lanatus*, *Bromus mollis*, *Medicago lupulina* (in the husk), *Plantago lanceolata*, *Rumex obtusifolius*, *Ranunculus acris*, *Chrysanthemum leucanthemum*, *Festuca sciuroides*, *Myosotis arvensis* (Field Scorpion Grass, or Forget-me-not).

New Seed tested for germination and purity.

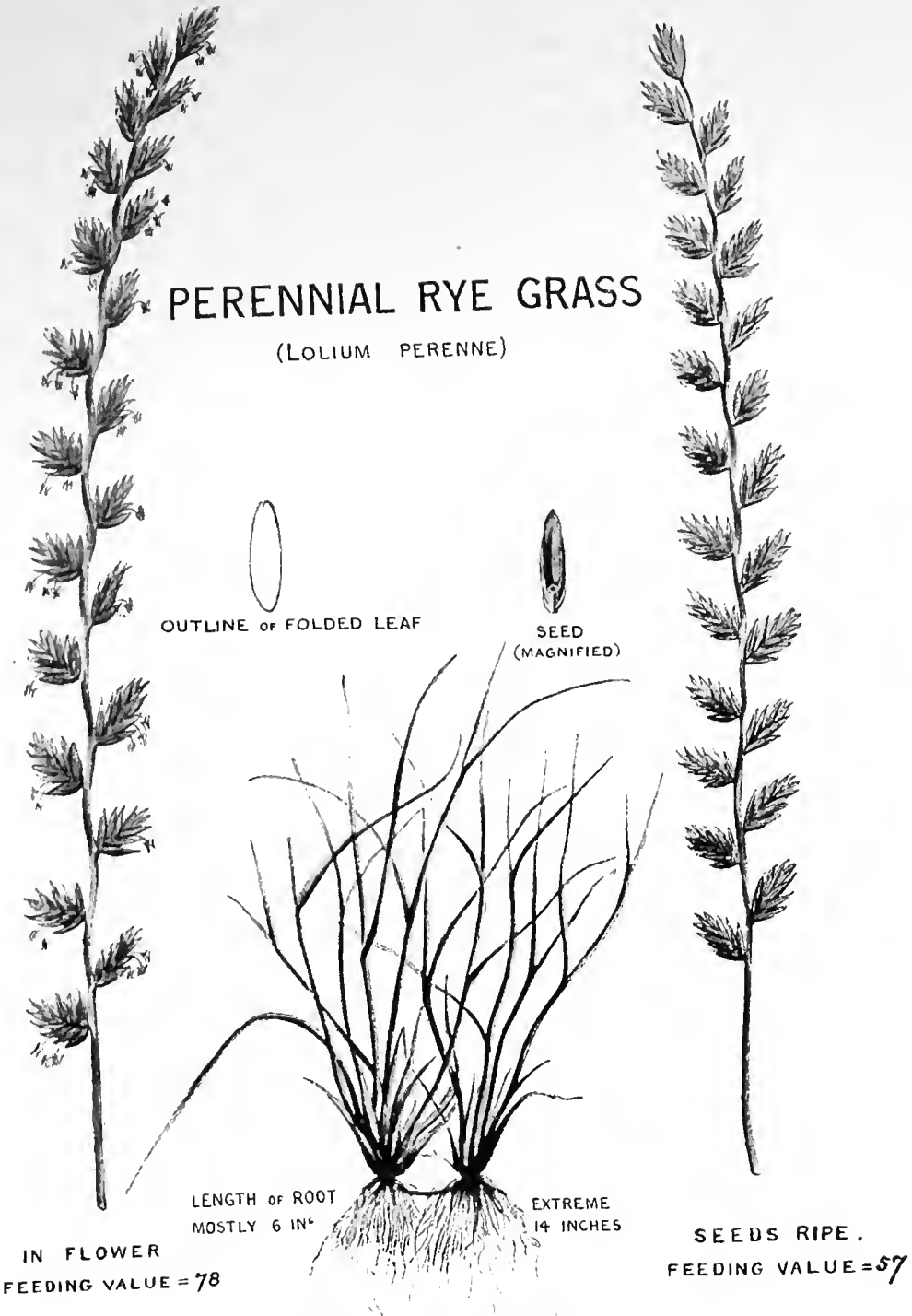
	Per quarter. s. d.	Per bushel. s. d.
Carters' Superfine Evergreen Italian Rye Grass.—The best variety in cultivation. As supplied to the principal Sewage Farms in Europe. The most rapid-growing and best early food for Sheep and Cattle. Eighty tons per acre have been grown in one year with Carters' Superfine Evergreen Italian Rye Grass	70 0	9 0
Improved Italian Rye Grass	62 6	8 0
Italian Rye Grass	54 0	7 0
Italian Rye Grass.—In Bales, as imported (about 2 cwt. per Bale). Lowest price on application.		
Annual or Common Rye Grass	50 0	6 6

IMPORTANT TESTIMONY.

"We have used Carters' Superfine Evergreen Italian Rye Grass in large quantities upon the Corporation Farm, for nearly 20 years, with the greatest success. We find it gives continuous crops in enormous weights per acre, yielding five to six cuttings a year of the most succulent fodder, which is valuable to ourselves, and is also eagerly sought after by horse-keepers and others."—

Mr. J. AVIS, Corporation Farm, Nottingham.

"Carters' Superfine Italian Rye Grass proved highly satisfactory to the Members of the Council who manage the Sewage Farm."—H. L.



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PERENNIAL RYE GRASS.

(*Lolium Perenne.*)

NOTE that the ear or panicle is *flat*, as if it had been pressed; that the *spikelets* (of which 24 are shown in the right-hand specimen) are attached *edgewise* and arise *alternately* on each side of the stem, and have *no stalks*; that each spikelet is made up of *one* outer glume (most grasses have two) and a number of *florets*. Each leaf has a bold *midrib* extending along the back; and, at its base, close to the root-stock, the leaf is doubled on itself, so that the leaf-sheaths are *flattened*, whilst their colour becomes *reddish* or *purplish*. Perennial Rye Grass is extensively used in alternate husbandry, and it is an abundant constituent in all prime old pastures.

For Prices and Particulars, see opposite page.

CARTERS', 237 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' PERENNIAL RYE GRASS.

LOLIUM PERENNE. **(See illustration facing.)**

A popular and valuable Grass when used in moderation in its proper place.

There is little doubt that the use of Rye Grass has been, and still is, at times very greatly abused. This abuse, in some instances, arises from the demand for so-called cheap Seeds. On the other hand, we believe that the most prominent opponents of the use of Rye Grass in the best pastures are of opinion that its exclusion is not desirable where the Seeds are intended to be sown upon land that is admitted to be below a certain commercial standard of value for agricultural purposes. It is also indisputable that where the hay or the pasture is required for horses, or for mixed grazing, Rye Grass is equally necessary, and it is an important fact that amongst the best farmers in Scotland Rye Grass forms the most prominent ingredient in the mixture of Seeds sown. It should, however, be borne in mind that land laid down to pasture in Scotland is generally broken up again within a period of from four to six years, so that this statement applies rather to the value to be attached to Rye Grass as a Hay Crop than to its adaptability for pastures of undefined duration, although it largely dominates among the grasses in all the old natural pastures found in the richest milk and butter-producing districts of the country.

Perennial Rye Grass is necessary in many prescriptions for permanent pastures as well as for those intended to produce crops of more limited duration. The use of Rye Grass is of very ancient date, references to the existence and adaptation of "Rye Grass" being found in a work published in England about the year 1677, whilst to the county of Oxford belongs the honour of its first general introduction at about the period to which we have referred.

It is generally recognised that Perennial Rye Grass is of value in almost all cases where large crops of herbage are required, but at the same time it is necessary to remember that, whereas on soils congenial to its requirements it is enormously productive and of high nutritive quality, in other cases, and where the soil and the surrounding conditions are not so favourable, the results, both as to extent of crop and feeding properties, are considerably lessened; hence the necessity for the proper adaptation of varieties and proportion of quantities of Grass Seeds intended for permanent pastures, as illustrated in the system we have adopted with unqualified success for many years. As a matter of fact, Perennial Rye Grass is a grass for good soils, and poor soils are incapable of making it a successful crop.

The principal cultivated varieties of Perennial Rye Grass are: *Lolium perenne* (Perennial Rye Grass), *Lolium perenne Paceyanum* (Pacey's Perennial Rye Grass), *Lolium perenne sempervirens* (Evergreen Perennial Rye Grass). Usually flowers early in July.

The weed seeds abounding in many cheap samples are: *Bromus mollis* (Soft Brome Grass), *Festuca sciuroides* (Rat's-tail Fescue), *Plantago lanceolata* (Plantain), *Holcus lanatus* (Yorkshire Fog), and *Ranunculus acris* (Buttercup).

CARTERS' PERENNIAL RYE GRASS.

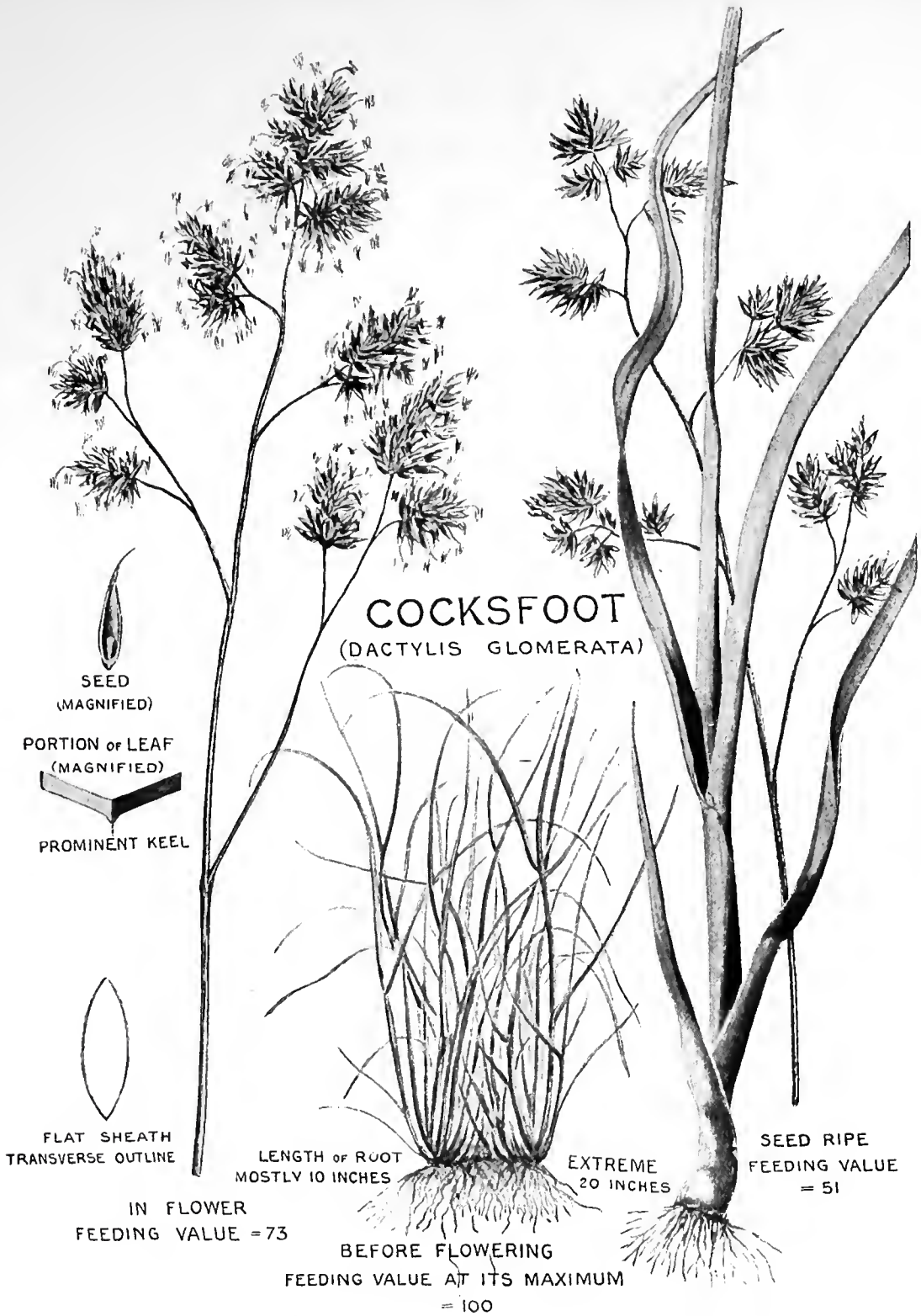
NEW SEED TESTED FOR GERMINATION AND PURITY.

	Per quarter. s.	d.	Per bushel. s.	d.
Perennial Rye Grass.—Carters' best selected Heavy Seed	65	0	8	6
Pacey's Perennial Rye Grass	54	0	7	0
Perennial Evergreen Devonshire Heaver	54	0	7	0
Perennial Rye Grass	46	0	6	0

☞ A REDUCED PRICE IS ALWAYS CHARGED FOR MORE THAN ONE QUARTER.

EVIDENCE OF THE SUPERIOR QUALITY OF OUR GRASS SEEDS.

"I take this opportunity of letting you know that I am now cutting my crop of New Meadow Grass, the result of your Seeds (about 25 acres), and notwithstanding an absolute drought for the past six weeks or more, I calculate to have quite an average of three tons to the acre, and in parts some experts say it will cut four tons. It is a wonderful sight for so terribly dry a year."—R. F. H. W.



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COCKSFOOT.

(Dactylis Glomerata.)

NOTE the thick *clusters* into which the *spikelets* are *agglomerated*, thus imparting to the panicle an appearance easily recognisable, as it differs from that of any other British grass. A tall robust plant of vigorous and rapid growth, its leaves are broad, thick, and *bluish-green*, but become *whitish* and flattened near the ground, forming dense *tufts or tussocks*. The "seed" consists of the floret, and is slightly twisted at the pointed extremity. A good meadow grass on account of the abundance of its herbage, but not suited for sowing alone because of its tussocky growth.

Seed Tested for Purity and Germination. Price **11d.** and **1s. 3d.** per lb. **Special Prices for Quantities.** See also page 16.

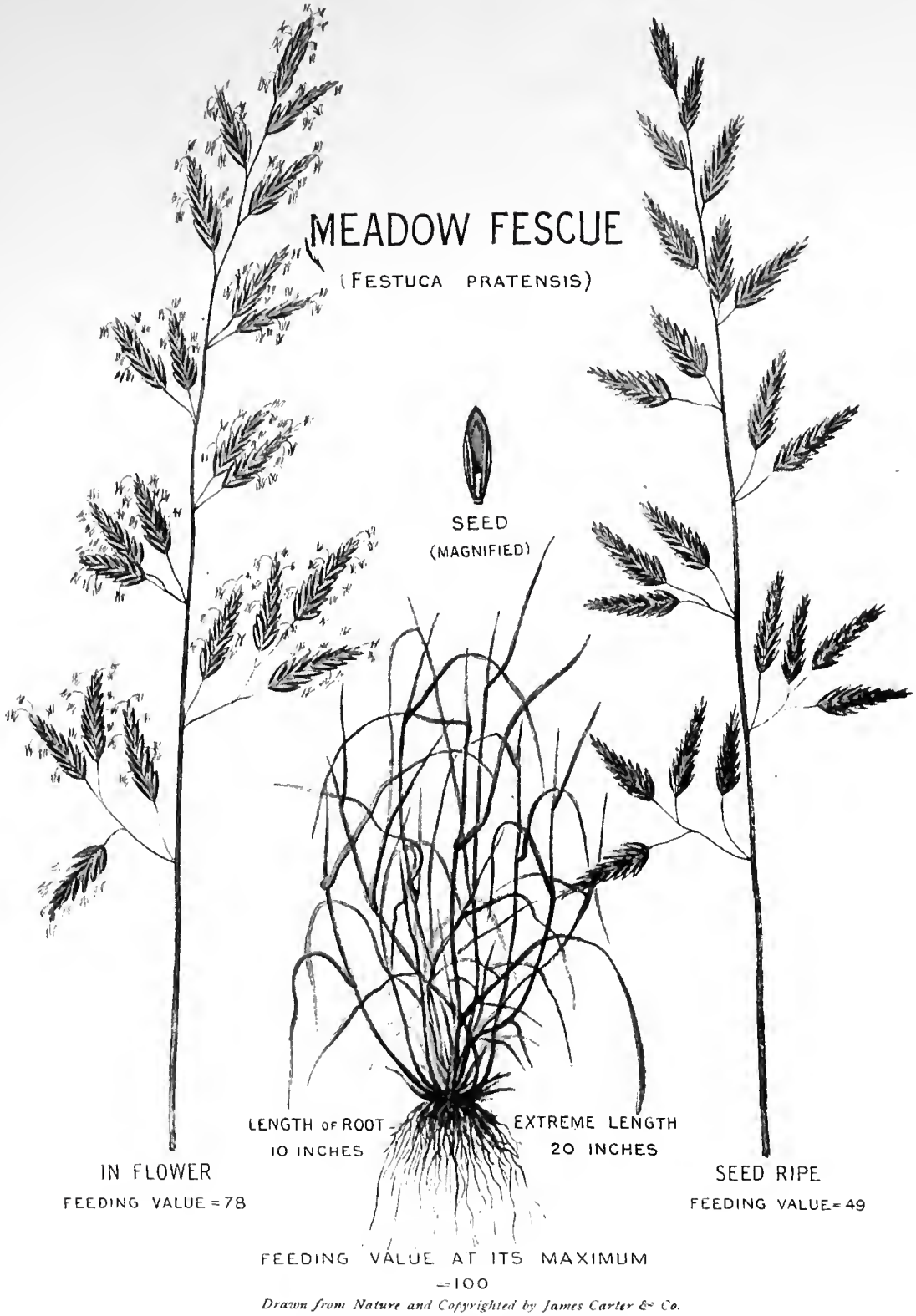
Drawn from Nature and Copyrighted by James Carter & Co.

MEADOW FOXTAIL.

(*Alopecurus Pratensis.*)

NOTE the pointed tail-like appearance of the ear or panicle, and its *soft silky texture* as drawn from base to tip between the finger and thumb. The *spikelets* are densely crowded together, and each has a *very short stalk*, as may be seen by doubling the ear on itself at about the middle. The *silver-grey colour* of the ear is due to the numerous long silky awns, one of which springs from the solitary *floret* contained within each spikelet. The "seed" consists of the entire spikelet. The prostrate *stolons* at the base of the stem extend in all directions, and, rooting at intervals, spread the plant uniformly over the land. One of our earliest grasses, and invaluable in permanent pasture.

Seed Tested for Purity and Germination. Price **1s. 2d.** and **1s. 4d.** per lb. **Special Prices for Quantities.** See also page 16.



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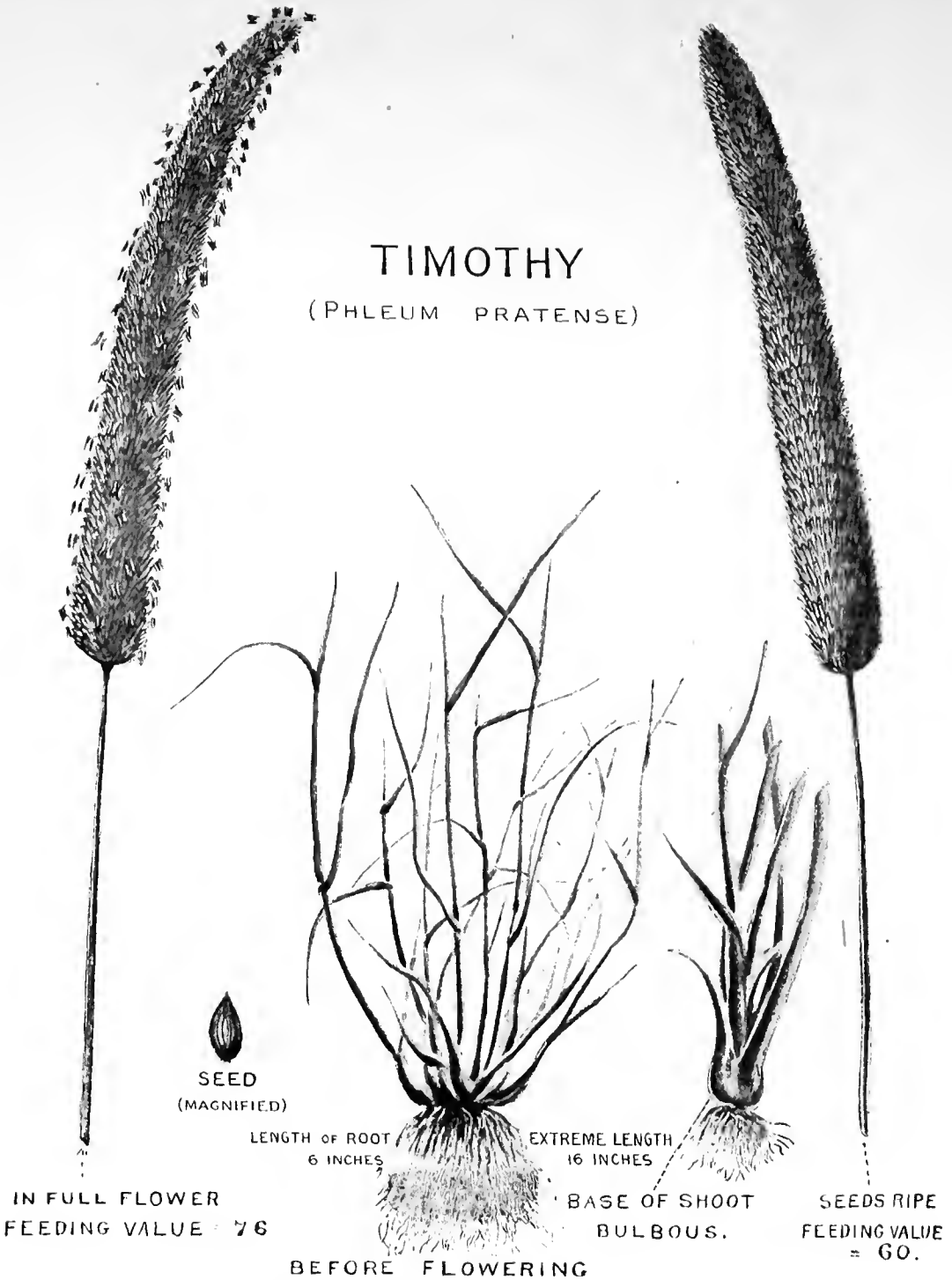
MEADOW FESCUE.

(*Festuca Pratensis.*)

NOTE the absence of awns on the florets; the *rounded* leaf sheaths; and the fairly *broad leaves*, this species being a good type of the *broad-leaved Fescues*. The leaves have a rich green colour, and the nodding panicle is turned somewhat to one side. The plant is deep-rooted and grows in compact tufts. A good grass in meadows and pastures, and thrives on damp, clayey, or marshy soils. Observe that the little stalk or pedicle at the base of the inner face of the "seed" is circular in section, thick at the free end, and thinner in the middle, thus differing from the corresponding structure in Perennial Rye Grass "Seed," which is shorter, and more elliptical in cross section.

Seed Tested for Purity and Germination. Price **1s. 1d.** and **1s. 4d.** per lb. **Special Prices for Quantities.** See also page 16.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.



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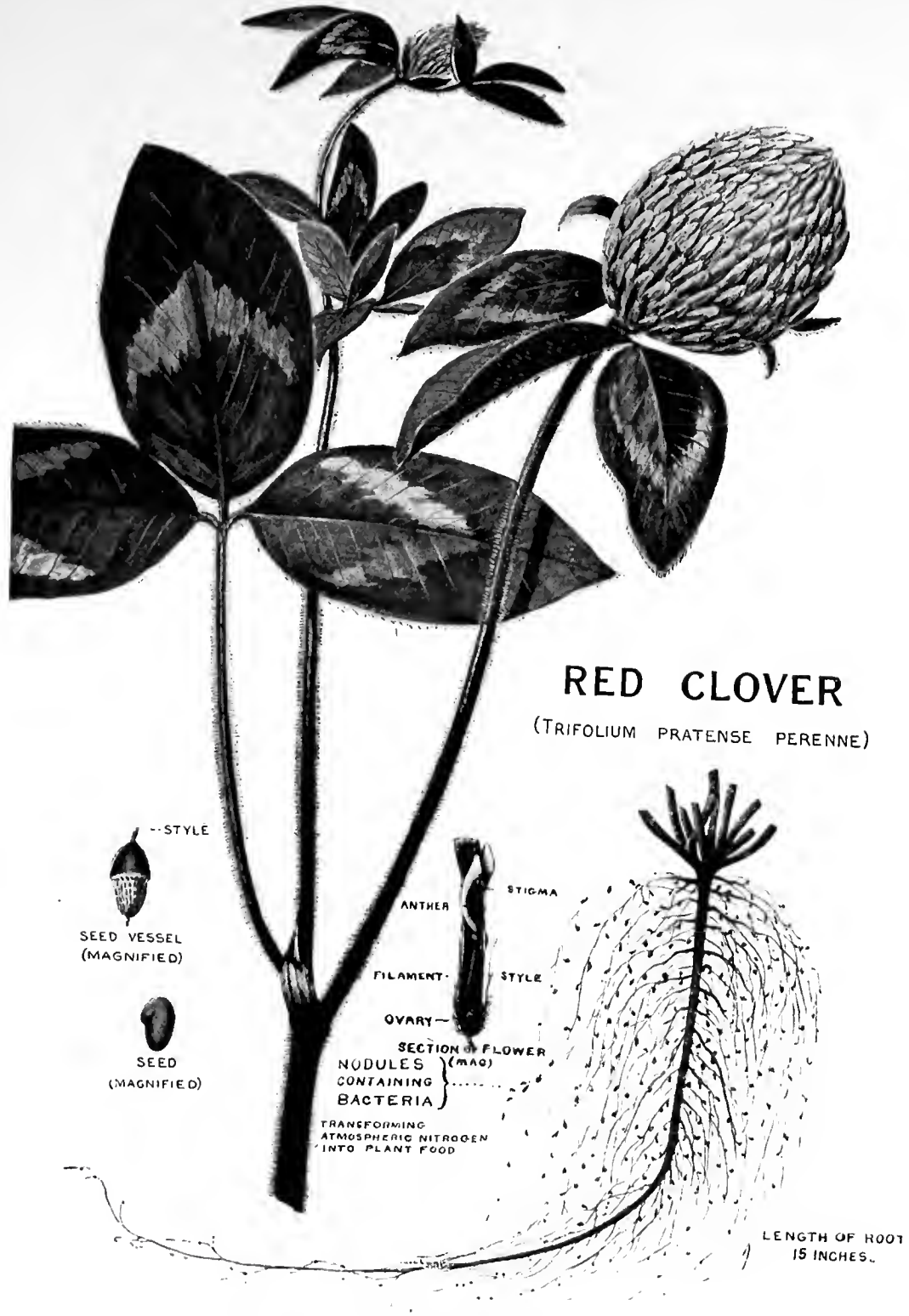
TIMOTHY.

(*Phleum Pratense.*)

NOTE that, though at first sight the ear or panicle of Timothy appears to bear some resemblance to that of Meadow Foxtail, it is nevertheless easy to distinguish between the two. The ear of Timothy is *green* in colour, and feels *rough* when drawn between the finger and thumb; that of Foxtail is *silver-grey* and *smooth*. In Foxtail the florets have silky awns; in Timothy there are *no awns*. The leaves of Timothy are *broader* and *more rigid* than those of Foxtail. Timothy is a *late-flowering* grass; Foxtail is early. Timothy has well-developed fibrous roots, and sometimes the base of the stem becomes bulbous just above the root fibres. The "seed" of Timothy is neat, compact, of a light drab colour, and unlike any other seed in commerce. Timothy grass is a most valuable constituent of good pastures.

Seed Tested for Purity and Germination. Price 6d. and 8d. per lb. **Special Prices for Quantities.** See also page 16

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.



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RED CLOVER.

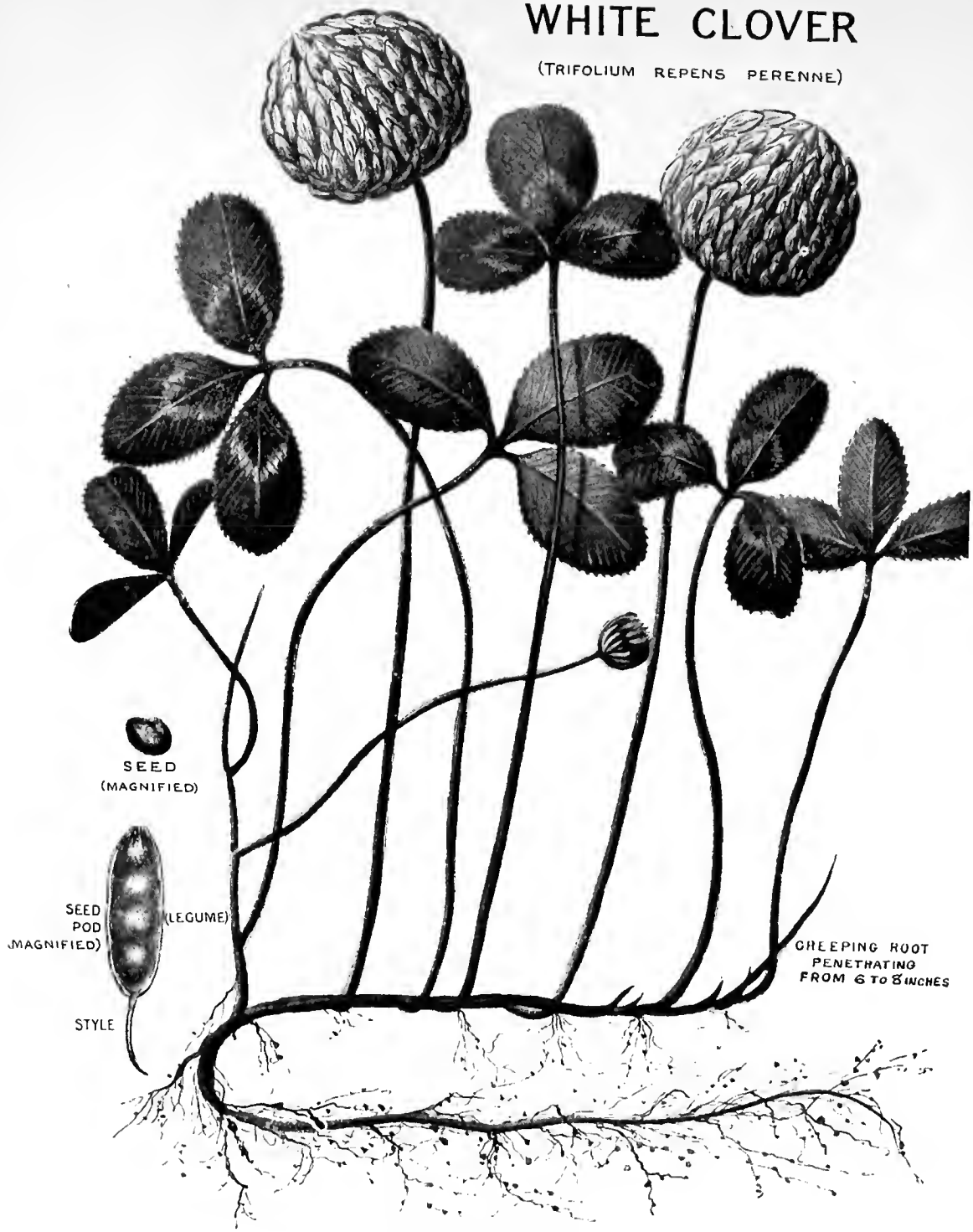
(*Trifolium Pratense Perenne.*)

NOTE the reddish purple *head*, made up of numerous small flowers; the *downy surface* of the plant; and the whitish horseshoe-shaped mark on each of the three *leaflets* which make up the leaf. The *pod*, or seed-vessel, shown at the left, is quite unlike the pods of other leguminous species. It is really a little box, the upper part being a smooth shining lid or cap, and the lower half containing a single *seed*, of colour ranging from dark purple to light yellow. This plant occurs in all ordinary meadows and pastures. It is largely used in mixtures of "seeds," intended to remain down for one, two, or more years; and it is also sown alone, and either folded with sheep or mown for hay.

Seed Tested for Purity and Germination. Price from **9d.** to **1s. 1d.** per lb. **Special Prices for Quantities.** See also page 17.

WHITE CLOVER

(TRIFOLIUM REPENS PERENNE)



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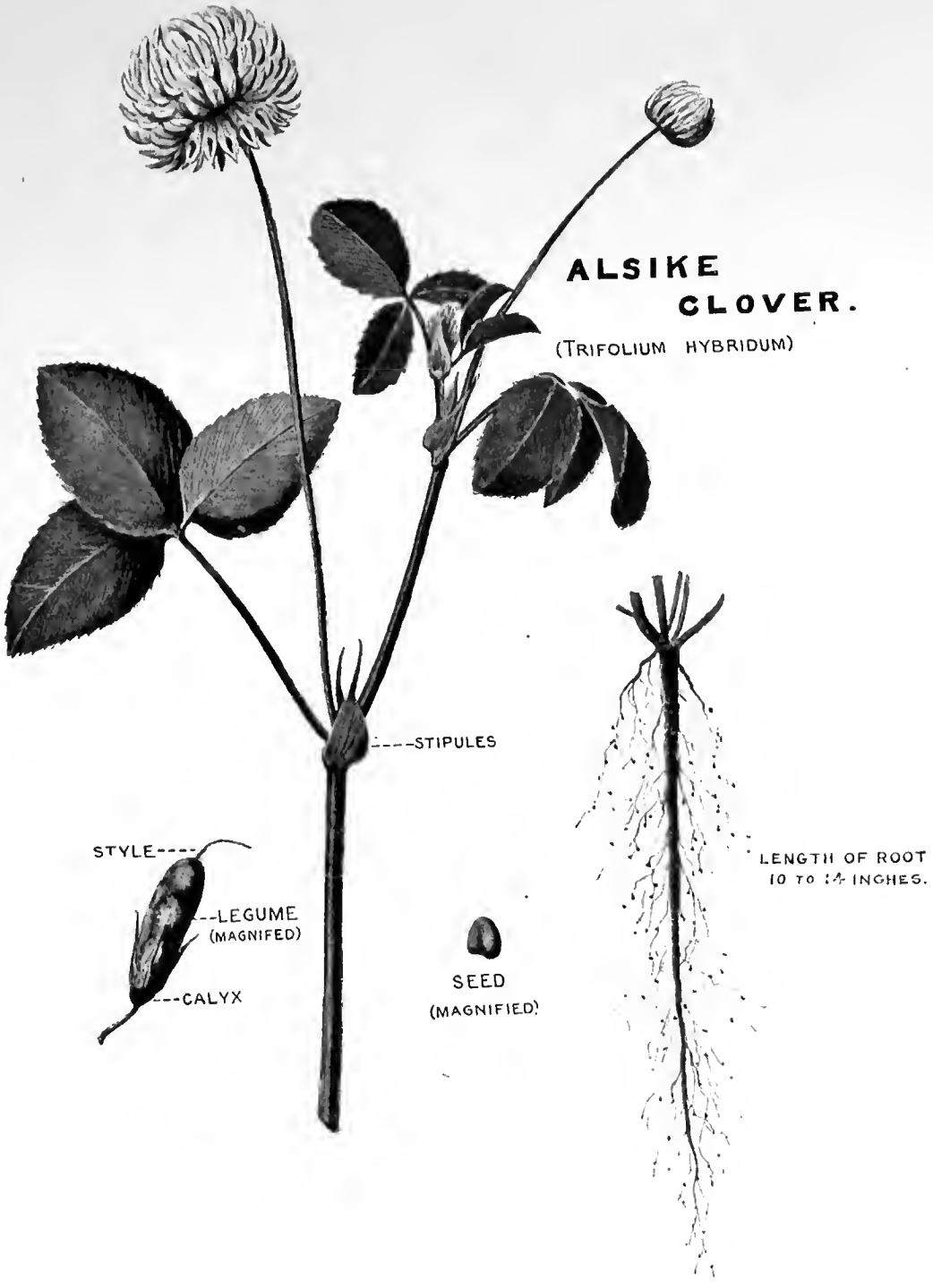
WHITE CLOVER.

(*Trifolium Repens Perenne.*)

NOTE the *creeping* habit of the *prostrate stem*, on account of which Dutch Clover has received the specific name of *repens* (*i.e.*, creeping or crawling). Examine a growing specimen in a pasture, and observe how the shoots spread out in all directions upon the surface of the ground. The small *white* flowers that make up the *head* become brownish or rusty from the base upwards as the seed ripens. The fruit is a flat *pod* or legume (one in each floret) and contains three or four *seeds* of sulphur or orange colour. As in other leguminous plants, the roots are well furnished with *nodules* containing bacteria, by the agency of which the nitrogen of the atmosphere is rendered available as food for the plant, and nitrogenous manuring is therefore unnecessary. White Clover is a perennial plant, found in all old pastures, and it aids in forming a rich close turf.

Seed Tested for Purity and Germination. Price from **11½d.** to **1s. 3d.** per lb. Special prices for quantities. See also page 17.



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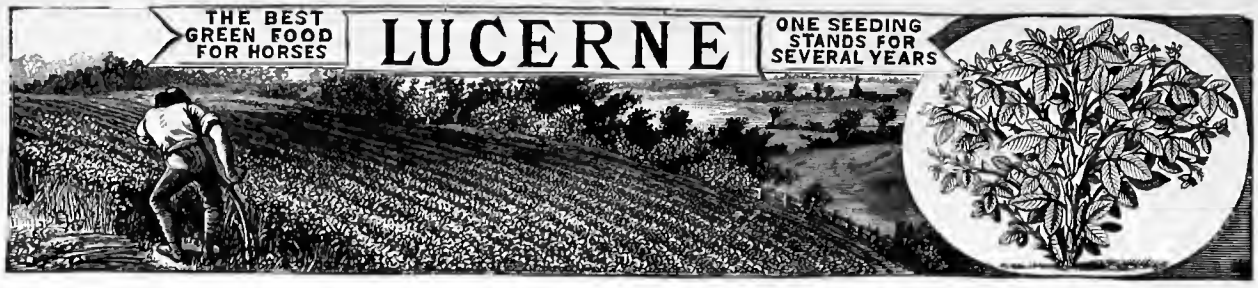
ALSIKE CLOVER.

(*Trifolium Hybridum.*)

NOTE the pink and white *head* of flowers, intermediate in appearance between Red or Purple Clover or White Clover, but less closely crowded than in either of these. The surface of the plant is smooth and the stems are hollow. The fruit is a short *pod* or legume, as shown with the adherent calyx of the flower at the lower left side of the diagram; it encloses one, two, or three small seeds of dark green colour. Alsike is a free grower on most kinds of soils, and is commonly included in mixtures of "seeds" for temporary layers. It is practically free from Clover sickness.

Seed Tested for Purity and Germination. Price from **11½d.** to **1s. 3d.** per lb. Special prices for quantities See also page 17.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.



LUCERNE OR ALFALFA.

MEDICAGO SATIVA, L. Nat. Ord. LEGUMINOSÆ.

The advantages of this valuable forage crop and storer of nitrogen are becoming better appreciated by English farmers, but it is still far too little cultivated. The English area in 1889 was 19,614 acres, and in 1899 it had extended to 32,238 acres, an increase of nearly two-thirds. The counties in which it is most largely grown are Essex, Kent, Suffolk, Hertford, Oxford, Norfolk, and Cambridge, so that it appears to be partial to the drier districts of England.

It thrives best in deep, dry, light soils, where its tap-root may easily penetrate to a considerable depth. Deep calcareous loams are especially suited to it, and these should be well manured and thoroughly tilled in the autumn.

Cleanliness is essential in the preparation of the seed-bed, to which deep tilth and liberal manuring should be added to ensure a remunerative crop. It may be advisable to include subsoiling or trenching in the preparation to secure a sufficiently deep tilth.

From the middle to the end of April is the best time for sowing the seed, which should be drilled at widths of 6 to 8 inches, or sown broadcast, at the rate of 24 lb. to 30 lb. per acre. By broadcasting upon a perfectly clean seed-bed, weeds are much more effectually kept down than where drilling is adopted. On the other hand, where the drills are sufficiently close, the plants obtain mutual support, and there is no trailing on the ground. The object of the late seed-time is that the young plants, which are somewhat tender, may escape frost.

Lucerne rapidly develops a crop, and yields well for seven or eight years, after which it begins to decline in value. But should the land show signs of becoming foul before this time, the most economical treatment would be to break it up.

If very strong it may be cut the first year, at the end of August, and not too near the ground. But no stock should be turned in, as they are apt to injure the young plants.

The second year it may be cut early in May, and three times altogether; after which it will cut from four to six times a year. Instead of the last cut of the season, however, the crop may be lightly folded with sheep.

A liberal top-dressing of farm-yard manure should be made every year, and where liquid manure is obtainable, it may be applied after each cutting with advantage.

Sir John Lawes recommends that Lucerne Seed should always be included in mixtures for laying land down to permanent pasture. The deep-rooting habit of the plant and its capacity for storing up nitrogen are obviously strong recommendations in its favour for such a purpose.

The finest Lucerne is grown in Provence, and is also extensively grown in the Argentine, in India, and in the Danube valley, in all of which countries its drought-resisting power make it invaluable.

All kinds of stock—horses, cattle, sheep, and pigs—are fond of it, and it is an exceedingly nutritious food, rich in nitrogen. It is equally suited for green soiling and for making hay. Farmers who are not familiar with Lucerne might do themselves a service by growing an acre or two as an experiment. The suppression of weeds in the earlier stages of growth of the crop is essential.

NEW SEED TESTED FOR GERMINATION AND PURITY.

LUCERNE SEED, FINEST GUARANTEED QUALITY	price 1s. per lb.; 108s. per cwt.	Drill 24 to 30 lbs. per acre
LUCERNE SEED, No. 2 QUALITY	price 10d. per lb.; 88s. per cwt.	

We recommend Purchasers of Lucerne Seed to buy the best quality.

CARTERS' "LUCERNE" MIXTURE.

The value of Lucerne as a constituent in Permanent Pastures is admitted, but it should not be sown with the finer Grasses, to the existence of which it must necessarily prove fatal by reason of its rapid and powerful growth.

The Mixture we offer comprises the strongest growing Clovers, Lucerne, and Grasses remarkable for bulk and nutritive properties.

PRICE 26/- PER ACRE.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' HOLBORN ELEPHANT SWEDE.

Photographed and Copyrighted by James Carter & Co.

CARTERS' HOLBORN ELEPHANT SWEDE.

A NEW TYPE OF ELEPHANT SWEDE.

Improvements in any agricultural commodity are certain to manifest themselves upon continued re-selection, and since it was our privilege to place "Elephant" Swede upon the market, we have, each season, endeavoured to improve it, and our novelty in Carters' "Holborn Elephant" embodies the very latest type, and it will be gleaned from the following reports (see next page) that our claims have been well borne out.

It is the custom for everyone who deals in seeds to describe his samples as "the best," in fact this word loses its true significance when applied to seeds, and it is for this reason that we identify **CARTERS' HOLBORN ELEPHANT SWEDE** with our own Establishment—to clearly define this grand Swede from every other.

Caution. *Carters' "Holborn Elephant" Swede, as distributed by us, is only obtainable in our sealed packages and bags. Intending purchasers should carefully note this fact when buying, or they may be misled.*

See also many important testimonials printed on opposite page.

CARTERS' HOLBORN ELEPHANT SWEDE.

An Extra Selected and Tested Stock.

	1 lb.	4 lbs.	7 lbs.	14 lbs.	28 lbs.
In sealed packages	1/9	6/6	11/6	22/-	42/-

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' HOLBORN ELEPHANT SWEDE.

A few Selected Reports from Customers, arranged in Sections of the Country for Convenience of Reference.

NORTH OF ENGLAND.

"I am well pleased with Carters' Holborn Elephant Swede, the roots being large and uniform in shape."—W. B., Cumberland.

"I am quite satisfied that Carters' Holborn Elephant Swede is the heaviest cropper and best keeping variety on the market."—R. C., Cumberland.

"I consider Carters' Holborn Elephant the best Swede in cultivation."—J. H. H., York.

"Carters' Holborn Elephant Swede has produced a very good crop, although sown late. The rabbits and hares prefer it to any other variety."—R. S. B., Durham.

"Carters' Holborn Elephant Swede has turned out very well, both as regards size and soundness; a great contrast to other varieties in the same field. I gained a special prize for them at a local show."

T. B., Westmorland.

"Carters' Holborn Elephant is a first-class Swede; I have taken many prizes with them."

A. J. R., Yorks.

"I cannot speak too highly of Carters' Holborn Elephant Swede; I never had a better crop."

W. L. S., Lincoln.

"I have a heavy crop of Carters' Holborn Elephant Swede, the roots being very sound and of good quality."—H. P., York.

SOUTH OF ENGLAND.

"I have found Carters' Holborn Elephant Swede excel all. I have been to an outlying farm to-day where this Swede beat all the district easily. They are of immense growth per acre, and finest quality."—H. R., Kent.

"Although our Swede crops are good this year, Carters' Holborn Elephant is the best cropper, and I am well pleased with it."—L. P., Herts.

"I have tried Carters' Holborn Elephant Swede side by side with the ordinary 'Elephant,' and find the former has much benefited by the re-selection, it being a decided improvement both in quality and productiveness, and has stood the dry summer exceedingly well."—C. B., Berks.

"People say my Holborn Elephant are the best seen in this locality, and they are very fine for such a dry season."—T. T., Dorset.

"Carters' Holborn Elephant Swede is very satisfactory. The roots are handsome and a great weight per acre."—J. T. E., Dorset.

"I have the best crop of Swedes I have ever grown, and consider Carters' Holborn Elephant a good variety."—J. C., Hants

"Carters' Holborn Elephant Swede are really good this season. I won a prize in acreage class at South Berks Agricultural Show, against strong competition."—W. C., Berks.

"My crop of Carters' Holborn Elephant Swede is excellent, and is considered by judges to be the best in the neighbourhood."—J. B., Devon.

"I grew five acres of Carters' Holborn Elephant Swede, and, notwithstanding the field did not receive the best attention, they gained a prize at the Egham ploughing match."—J. G., Surrey.

"I have a splendid crop of Carters' Holborn Elephant Swede, the best I have ever grown. I have taken first prize with every entry made."

J. T., Sussex.

MIDLAND COUNTIES.

"Carters' Holborn Elephant Swede has given me every satisfaction. My neighbours say it is the best in the district."—J. D., Leicester.

"Carters' Holborn Elephant Swede has done remarkably well with me, and yielded a great crop of splendid sound roots. None of my neighbours have so heavy a crop."—T. J. B., Notts.

"I am quite satisfied that Carters' Holborn Elephant Swede is a first-class variety, and it will take something very good to beat or equal it, as I consider it the best sort I have grown both for weight per acre and quality."—T. B., Northampton.

"I am very pleased with Carters' Holborn Elephant Swede, and have the best six acres in the neighbourhood."—S. S., Oxford.

"Carters' Holborn Elephant Swede gave every satisfaction, yielding nearly 50 tons per acre, and they have kept well."—J. J. G., Worcester.

"Carters' Holborn Elephant Swede has given me great satisfaction, and I shall grow more next year."—E. K., Warwick.

EAST OF ENGLAND.

"Carters' Holborn Elephant Swede is a good cropper, and its greatest advantage is that it is easily pulled and comes off very clean."—F. W. C., Cambridge.

"Carters' Holborn Elephant Swede has given great satisfaction. It has proved a heavy cropper and of excellent quality."—T. B., Norfolk.

"Carters' Holborn Elephant Swede has produced the best crop I have ever grown; the quality and shape are very good."—J. E., Suffolk.

WEST OF ENGLAND.

"Carters' Holborn Elephant Swede has given every satisfaction, and the roots are far superior to any other variety."—W. B., Salop.

"Carters' Holborn Elephant Swede has given every satisfaction. I have taken two first prizes with them at our local shows."—J. L., Monmouth.

"I have grown your Holborn Elephant Swede for several years, and find them a very good keeping Swede, producing large weight per acre."

J. I. G., Hereford.

"Carters' Holborn Elephant Swede has given me great satisfaction, and have obtained several prizes this season."—S. F., Staffs.

"Carters' Holborn Elephant Swede has produced a very excellent crop."—J. F. H., Somerset.

"I am very pleased with Carters' Holborn Elephant Swede, and cannot recommend them too highly I have never had so many roots before, about 40 tons per acre."—W. O. B., Staffs.

WALES, IRELAND, AND SCOTLAND.

"Carters' Holborn Elephant Swede has given me great satisfaction, and in a field competition the judges were of opinion that the crop was the heaviest they had seen."—J. D., Wales.

"I have a very good crop of Carters' Holborn Elephant Swede, the best I ever had."—J. G., Wales.

"Carters' Holborn Elephant Swede has given me entire satisfaction, being an abundant crop in this unfavourable season."—C. B., Ireland.

"Carters' Holborn Elephant Swede has yielded the best crop I have had for many years."—J. A., Ireland.

"Carters' Holborn Elephant Swede has produced a magnificent crop in size, weight, and colour."—Mrs. B., Ireland.

"I have a very satisfactory crop of Carters' Holborn Elephant Swede, and have not noticed a diseased one amongst them."—E. D. D., Ireland.

"Carters' Holborn Elephant Swede gave 43 tons per acre. The farmers in this county compete for a cup; had I been eligible I could easily have won it, as I was tons ahead of the winner."—P. G., Scotland.

'Carters' Holborn Elephant Swede gives a good crop; very sound roots, of excellent quality."—M. C., Scotland.

CARTERS' ELEPHANT SWEDE.

Photographed and Copyrighted by James Carter & Co.

CARTERS' ELEPHANT SWEDE IN BUCKINGHAMSHIRE.

Carters' Elephant Swede, as originally introduced by us, is distinct from the Imperials, Champions, and all other round varieties offered in this catalogue (see page 38), and it is from this variety that we have selected our New Holborn Elephant Swede.

Carters' Elephant Swede is a quick grower, robust in habit, and stands well out of the ground. The flesh is a rich creamy yellow, and it keeps sound in most localities. The crop is uniform in size, and the rows can be readily distinguished when growing in association with other varieties.

The success of Carters' Elephant Swede has induced many provincial dealers to offer inferior stocks at a lower price calling them Carters' Elephant Swede, but about which we know nothing. Our own seed is grown carefully each year from selected plants under our own supervision, so that the seed of our own saving must be the best.

Awards of several hundreds of Silver Cups and First Prizes have been made to Carters' Elephant Swede since its introduction in 1887.

Ask for Carters' Elephant Swede in Carters' sealed packets and bags, as this is the only guarantee that the seed emanates from our house.

New seed tested for germination and purity.

	1 lb.	4 lb.	7 lb.	14 lb.	28 lb.
IN SEALED PACKAGES, PRICE	1/6	5/6	9/6	18/6	36/6

THE QUEEN'S PRIZE FOR FARMING.

A LETTER FROM THE WINNER.

RIDING COURT, DATCHET, BERKS,

October 22nd, 1900.

MESSRS. CARTER & CO.

GENTLEMEN,

You will feel gratified to learn that I have had the honour and pleasure this year of gaining the following important Prizes with the produce of 72 acres of root crops grown from your seeds.

THE PRINCE CONSORT'S CUP, VALUE 20 GUINEAS, presented by Her Majesty the Queen for the best cultivation of root crops within the limits of the Royal South Bucks Agricultural Association. There were 13 competitors.

THE FIRST PRIZE OF £7 7s. for the heaviest crop of Mangel, given by the Sulphate of Ammonia Co.

THE FIRST PRIZE OF £4, Chiltern Hills Agricultural Association, for the best crop of Mangel—not less than five acres.

THE FIRST PRIZE OF £3 for the best three acres of Mangel grown after a white straw crop.

Yours, &c.,

JOHN KINROSS

SOME OTHER IMPORTANT PRIZES

GAINED BY MESSRS. CARTERS' CUSTOMERS IN

OPEN COMPETITION DURING THE AUTUMN OF 1900.

LONDON.
First Prize for Agricultural Produce.

BASINGSTOKE.
44 First and other Prizes.

GRANSDEN.
17 First and other Prizes.

CHILTERN HILLS.
11 First Prizes.

SOUTH BERKS.
26 First and other Prizes.

HAREWOOD END.
8 First and other Prizes.

BIRMINGHAM.
9 First and other Prizes.

EAST BERKS.
H.R.H. The Prince of Wales' Cup.

GUILDFORD.
12 First and other Prizes.

MIDDLESEX.
6 First Prizes.

TRING.
8 First Prizes.

WOKINGHAM.
10 First and other Prizes.

PRINCES RISBOROUGH.
8 First Prizes.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS'
HOLBORN KANGAROO SWEDE.

A new introduction last year, see illustration opposite.

CARTERS' KANGAROO SWEDE has obtained a very great reputation in many districts, and we had the privilege to bring to the notice of our Customers last year a highly selected strain of this fine Swede, which we designate

CARTERS' HOLBORN KANGAROO.

It is the exhibition type—the acme of excellence—the perfected selection of many experiments.

All packages are sealed and offered by us under the protection of our own Registered Trade Mark, "TWO CARTERS."

CARTERS' HOLBORN KANGAROO SWEDE cannot be obtained from any other firm unless sealed in this manner.

Packets and Bags, each containing	1 lb.	4 lbs.	7 lbs.	14 lbs.	28 lbs.
PRICE	1/9	6/6	11/6	22/-	42/-

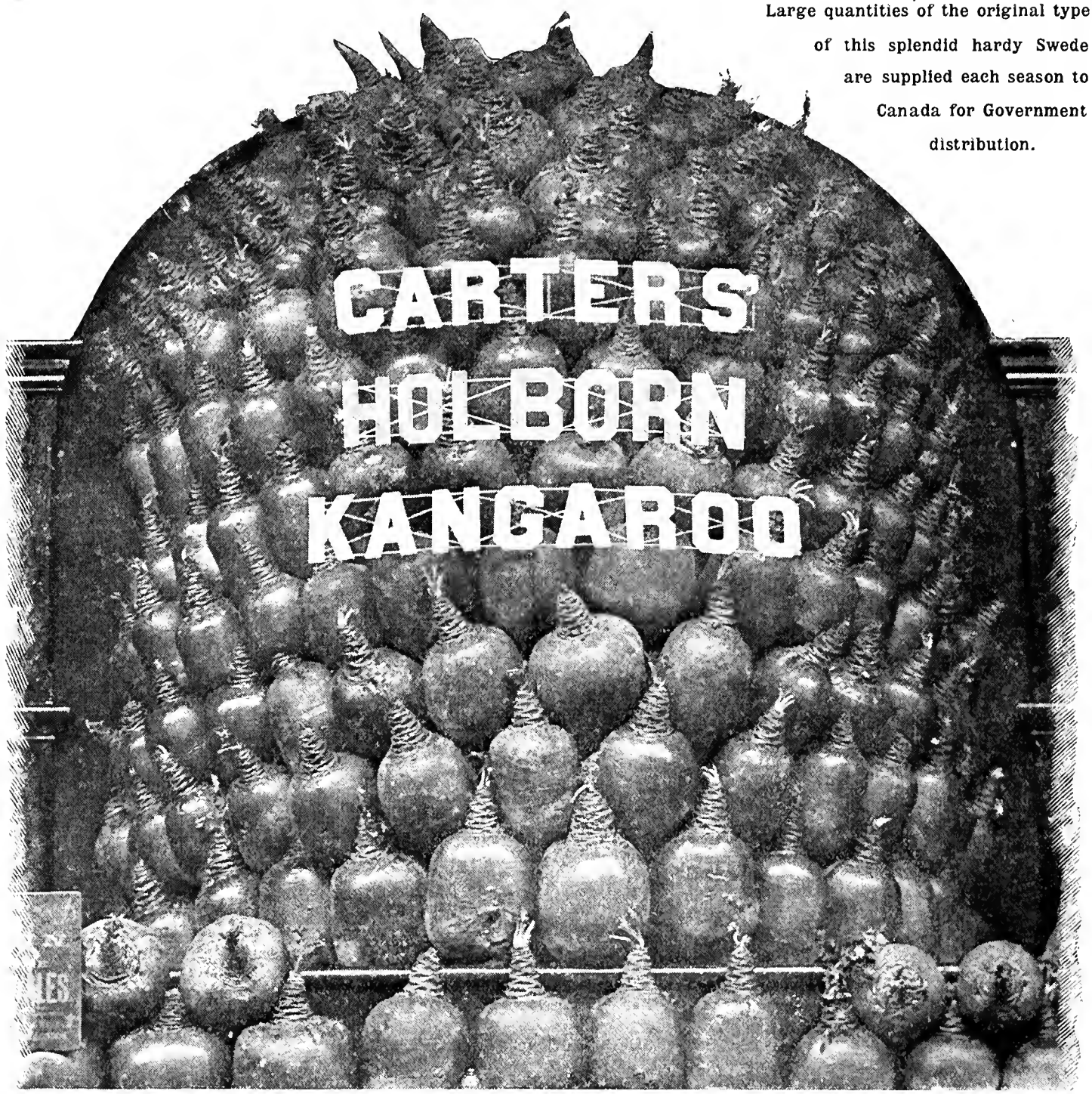
Trade Mark—
TWO CARTERS.

Trade Mark—
TWO CARTERS.

CARTERS', 237. 238, & 97, HIGH HOLBORN, LONDON.—1901.

AS EXHIBITED BY US AT THE CATTLE SHOW, AGRICULTURAL HALL, LONDON, 1899-1900.

Large quantities of the original type of this splendid hardy Swede are supplied each season to Canada for Government distribution.



Photographed and Copyrighted by James Carter & Co.

LONDON CATTLE SHOW, 1899-1900.

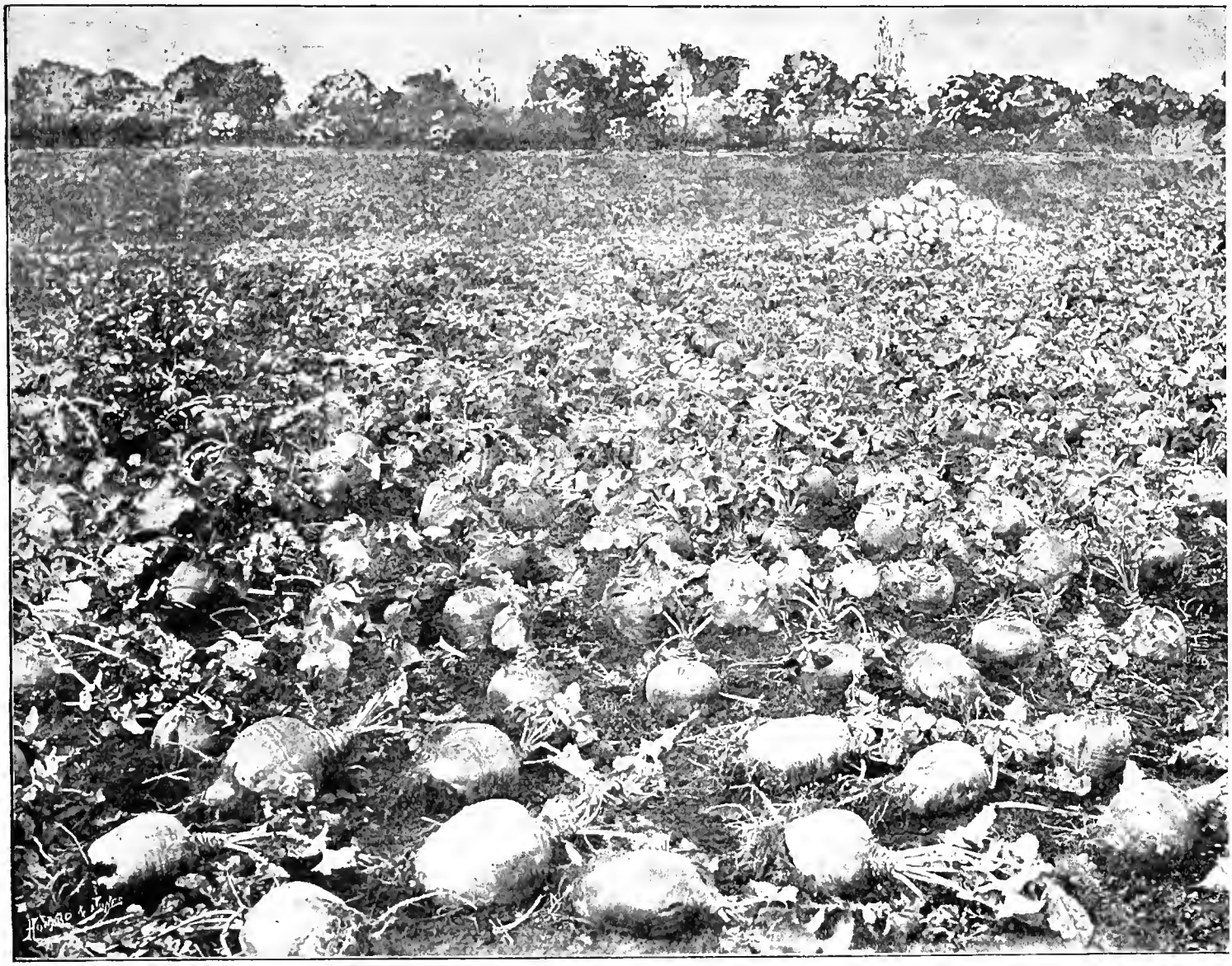
CARTERS' HOLBORN KANGAROO SWEDE.

For full description, see opposite page.

	1 lb.	4 lb.	7 lb.	14 lb.	28 lb.
Sold in Sealed packages	1/9	6/6	11/6	22/-	42/-

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' KANGAROO SWEDE.



FIELD CROP OF CARTERS' KANGAROO SWEDE.

REGISTERED TRADE MARK—
TWO CARTERS.

This fine hardy Swede possesses the heavy cropping features of Carters' "Elephant," with the grand constitution of the best types of green top Swedes, and is increasing in popularity each year, particularly in those districts subjected to an excessive rainfall, or where the land lies exposed and is consequently cold and backward. It was originally raised by one of our customers in one of the northernmost States of Canada, where the thermometer stands below zero for the greater part of the winter months, so that its hardiness is indisputable.

Intending purchasers should see that all packages bear our Registered Trade Mark on the label, without which none are genuine, as distributed by us.

STOCK VERY LIMITED.

	1 lb.	4 lb.	7 lb.	14 lb.	28 lb.
SOLD IN SEALED PACKAGES	1/6	5/6	9/6	18/6	36/6

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' PRIZE-WINNER HARDY SWEDE.

The Best Globe-shaped, Purple-top Swede in commerce.

THE ROOT FROM WHICH THIS PHOTOGRAPH WAS TAKEN

WAS GROWN UPON THE ROYAL ESTATE AT SANDRINGHAM.

Undoubtedly the best round purple-top Swede in cultivation, and of special value on light soils and in dry seasons.

Photographed and Copyrighted by James Carter & Co.

Price 1/2 per lb., 56/- per bushel. Sow 4 lbs. per acre. SPECIAL PRICE FOR QUANTITIES.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' SELECT STOCKS OF POPULAR SWEDES.

Sow 4 pounds per acre.

	Sold in Sealed Packages.				
	1 lb.	4 lb.	7 lb.	14 lb.	28 lb.
Carters' Holborn Elephant Swede (*for Description, see pages* 30 *and* 31) PRICE	1/9	6/6	11/6	22/-	42/-
Carters' Elephant Swede (*for Description, see page* 32)... ... PRICE	1/6	5/6	9/6	18/6	36/6
Carters' Holborn Kangaroo Swede (*for Description, see pages* 34 *and* 35) PRICE	1/9	6/6	11/6	22/-	42/-
Carters' Kangaroo Swede (*for Description, see page* 36) ... PRICE	1/6	5/6	9/6	18/6	36/6

	Per bushel. s.	d.	Per lb. s.	d.
Skirving's Purple-top Swede, well-known, very large...	60	0	1	3
East Lothian Purple-top Swede, a most excellent sort	60	0	1	3
Carters' Prize-Winner Swede (*for Description, see page* 37)	56	0	1	2
Crimson King, an excellent sort	63	0	1	4
Improved Liverpool Swede, a large variety	52	0	1	1
Hardy Purple-top Swede	56	0	1	2
Monarch, true	63	0	1	4
King of the Swede, an oval-shaped, purple-top variety	60	0	1	3
Lord Derby Swede, a choice stock	56	0	1	2
Carters' Purple-top Stubble Swede, large, solid, and nutritious	70	0	1	6
Bangholm Swede, a popular Scotch variety	60	0	1	3
Hartley's Green-top Swede, largely grown in Yorkshire	56	0	1	2
Queen of Swedes, a very large, solid, and nutritious green or bronze-topped variety	60	0	1	3
Westbury Swede, fine quality	56	0	1	2
Champion Swede, a good Globe Swede	56	0	1	2
Best of All	70	0	1	6
Universal	70	0	1	6

Photographed and Copyrighted by James Carter & Co.

FIRST PRIZE, LONDON DAIRY SHOW, IN THE COLLECTION OF AGRICULTURAL PRODUCE.

SOMETHING NEW ABOUT MANGEL GROWING.

From THE YORKSHIRE POST, *January 20th*, 1900.

A test has been conducted at the Experimental Farm at Holmes Chapel, in Cheshire, which is of an extremely valuable and interesting character, and as it is a form of test which we believe to be quite new in its application, we produce the most salient points for the information of the agriculturist. Twenty-four varieties of mangel were grown, 8 lbs. of seed per acre being sown, between May 5th and 11th. The object was first to test the varieties; second, to ascertain their tendency to run to seed; third, to ascertain the amount of water and dry matter: and fourth, to test the relative values in accordance with the total yield of bulbs and the total yield of dry matter per acre. The average yield per acre varied in the different varieties from 25 tons to 41 tons. Thirteen exceeded 30 tons per acre, the varieties shown being in every case obtained from one of four large firms. . . .

Carters' Windsor Yellow, which gave the heaviest yield—41 tons—gave a value per ton in accordance with the dry matter contained of 12s. 5d., taking an average value of 15s. 1d. all round.

SEE MORE VALUABLE TESTIMONY, PAGES 41 AND 42.

SEED TESTED FOR GERMINATION AND PURITY. Sow 8 pounds per acre.

1/6 per lb. **156/-** per cwt.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901

Photographed and Copyrighted by James Carter & Co.

CARTERS' WINDSOR MANGEL.

A FIELD CROP OF 70 TONS PER ACRE.

SEED TESTED FOR PURITY AND GERMINATION.

Price **1/6** per pound; **156/-** per cwt.

The outlay of an extra shilling or two per acre in root seeds often ensures several tons greater weight of produce.

READ THE REMARKABLE TESTIMONY ON OPPOSITE PAGE.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

Our Customer, MR. JOHN KINROSS, of Riding Court, Datchet,

WHO LAST SEASON WON

THE QUEEN'S PRIZE FOR FARMING,

Value 21 Guineas

(See Illustration and Letter, page 29),

Grew 30 acres of CARTERS' WINDSOR MANGEL.

This gentleman also secured the following important prizes in open competition:—

THE FIRST PRIZE OF £7 7s.

for the heaviest crop of Mangel, given by the Sulphate of Ammonia Co.

THE FIRST PRIZE OF £4,

Chiltern Hills Agricultural Association, for the best crop of Mangel—not less than five acres.

THE FIRST PRIZE OF £3

for the best three acres of Mangel grown after a white straw crop.

THESE REMARKABLE RESULTS confirm our own opinion of the grand qualities of CARTERS' WINDSOR MANGEL, which should be grown by every farmer.

A customer in Surrey writes:—

"I am perfectly satisfied with Carters' Windsor Mangel, and consider the extra price per pound a good investment."

CARTERS' WINDSOR (PRIZETAKER) MANGEL.

A few Selected Reports from Customers, arranged alphabetically in Counties for Convenience of Reference.

BEDFORD.

"Carters' Windsor Mangel Seed was very good. Although sowed much later than other sorts they are a great deal better. Shall use them next year."—F. B.

BERKS.

"I have some splendid roots of Carters' Windsor Mangel, and never wish for a better sort."—B. S.

"Carters' Windsor Mangel is a thorough good Mangel, both in quality and quantity."—R. M.

BUCKS.

"The Mangel had the smallest roots I ever saw, and came up with the slightest touch."—R. F.

"Carters' Windsor Mangels are excellent; the best I have seen in the neighbourhood."—G. P.

"I consider Carters' Windsor Mangel quite a distinct variety, and have five tons more per acre than the Golden Tankard, grown in the same field."—B. S.

CAMBRIDGE.

"Carters' Windsor Mangel are all that can be desired. Their shape is perfect, and the flesh is vastly superior to any I have grown."—J. H.

"Carters' Windsor Mangel are a grand crop, fully one-third heavier than two other kinds growing beside them."—G. S.

CHESHIRE.

"I am well pleased with your Windsor Mangel. I think there is fully one-quarter more than any other variety, and you can see plainly where they are in the field."—G. L.

"Carters' Windsor Mangel is an excellent variety, both as regards crop and quality. I have never before grown such weight per acre, the roots being nicely formed, with small top, and I can recommend them as a first-class variety."—T. C.

CORNWALL.

"Carters' Windsor Mangel has produced the best crop I ever had, and am sure it is the heaviest and best cropping Mangel in cultivation."—R. J.

"I have tried Carters' Windsor Mangel beside other popular varieties for two years, and proved them to be the best."—T. H. M.

CUMBERLAND.

"No one in the neighbourhood has anything like my Windsors."—W. B.

DERBYSHIRE.

"I had the best crop in the district, 65 tons to the acre.'

J. A. S.

"Carters' Windsor Mangel far exceeds any other variety I have ever grown; the roots are large, well-shaped, and perfectly sound."—J. B.

"I consider Carters' Windsor Mangel one of the best varieties, both in quality and quantity. I have myself grown, and have also seen on other farms, crops of over 60 tons per acre."—W. T.

DEVONSHIRE.

"I have tried eight different sorts of Mangel this year, but Carters' Windsor is by far the best."—J. S. C.

"I have tried Carters' Windsor Mangel against three other sorts, and it has produced the best and heaviest crop."—A. B.

"Carters' Windsor Mangel has turned out remarkably well, and has produced the best crop of three varieties grown in one field."—R. J. S.

"Carters' Windsor Mangel is the best I ever had."—P. G.

"I am very pleased with Carters' Windsor Mangel; they are of splendid quality, with very fine tap root, and lift easily."—R. M.

DORSET.

"Carters' Windsor Mangel is far away the best in the neighbourhood and greatly admired; they had no special care, and are calculated to be at the rate of 40 tons per acre."

Rev. G. H. B.

DURHAM.

"Carters' Windsor Mangel is a very good crop, much larger and heavier than Intermediate."—G. H.

ESSEX.

"Your Windsor Mangel did very well on low ground. Where there was some moisture they were magnificent, and I saw no fields of Mangel round here where so few had run to seed."—A. G.

"I grew Carters' Windsor Mangel side by side with a good well-known sort, and it is decidedly the best. It has less top of any Mangel I ever grew."—W. D.

"I have the best Mangel I have had for ten years grown from Carters' Windsor. They are very clean, and of excellent quality."—G. J.

GLOUCESTERSHIRE.

"The seed I bought of you last year produced the best Mangel I have ever grown; they were much admired."—F. B.

"I have four sorts of Mangel planted, but I find Carters' Windsor by far the best, bearing Yellow Globe by tons per acre."—J. H. C.

"I am very pleased with Carters' Windsor Mangel, and, although not sown until the 8th June, the crop is nearly twice as heavy as another sort which was drilled side by side at the same time."—G. D.

HAMPSHIRE.

"I consider Carters' Windsor Mangel a very good variety both in colour, size, and keeping qualities."—J. T.

"Carters' Windsor Mangels are the finest I have ever grown, and shall sow them again another year."—J. M.

HEREFORDSHIRE.

"Carters' Windsor Mangel is far in front in quality and weight to two other sorts which were grown side by side."

J. S.

"Carters' Windsor Mangel has done well. The judges said they were the best quality Mangel they had seen. I planted it against other sorts, but the Windsor was much the heaviest crop."—T. A. B.

HERTFORDSHIRE.

"Carters' Windsor Mangel on the Barnet Local Boards Farm grew 70 tons per acre, and fetched £33 per acre at public auction."—C. N.

"I sowed the Mangel alongside some I had from two other seedsmen; yours were far better in every point, and especially in germination."—R. F. G.

"I have grown five different sorts of Mangel side by side, and Carters' Windsor gives the largest yield by far."

H. W. B.

"Carters' Windsor Mangel is by far the best of four different kinds, being large and of good quality."—T. W.

"Carters' Windsor Mangel has turned out very successful, and is the best crop in the neighbourhood."—G. F.

HUNTINGDONSHIRE.

"Carters' Windsor Mangel has turned out splendid, and I have never seen a better cropper."—G. S.

IRELAND.

"Carters' Windsor Mangel roots are the best in the field, of an even size and very healthy."—Miss O'G.

"Carters' Windsor Mangel is a decided improvement. It is a heavy cropper, easy to grow, and a great acquisition to the farmer."—G. H.

"Carters' Windsor Mangel has given great satisfaction. I have two other varieties in the same field, and they are nothing compared to it."—Th. H.

"Carters' Windsor Mangel has produced the soundest and heaviest crop I have had for the past 10 years."—W. J. D.

"I decidedly prefer Carters' Windsor Mangel to any of the globe sorts that I have seen hitherto."—Rev. C. C.

KENT.

"Carters' Windsor Mangel is the largest I have ever grown, and a great improvement upon other varieties."—G. A.

"Carters' Windsor Mangel have turned out remarkably well. They were sown side by side of other varieties, under the same conditions, and are superior in every way, the roots being large, of good shape, and superb quality."—J. K.

LANCASHIRE.

"I have some fine large roots of Carters' Windsor Mangel, which pull very clean, and shall sow more next year."—T. A.

LEICESTERSHIRE.

"I have grown two acres of Carters' Windsor Mangel in a plot of five acres, cultivated exactly alike, and all sown the same day, and it far surpasses either of the other sorts both in weight and quantity."—J. T.

"I am well satisfied with Carters' Windsor Mangel. I tried it against varieties procured from two other firms, but the Windsor Prizetaker proved the best."—W. B.

LINCOLNSHIRE.

"I consider Carters' Windsor Mangel the best I have ever grown. I tried them by side of another variety."—A. C.

"I grew 1½ acres of Carters' Windsor Mangel, and it yielded 40 large cartloads of good roots."—T. J. L.

"Carters' Windsor Mangel has given me every satisfaction, and consider I have the best crop in my district."—W. G.

MIDDLESEX.

"Carters' Windsor Mangel has given me every satisfaction, and the roots are very sound, and of exceptional quality. I gained first prize at the Middlesex Agricultural Society with a weight of a little over 57 tons per acre."—G. T.

MONMOUTHSHIRE.

"The largest and heaviest cropper I have ever grown. I have been a cultivator of Mangels for 16 years."—K.

NORFOLK.

"Carters' Windsor Mangel is the best crop I have grown for 10 years."—C. J.

"Carters' Windsor Mangel has given me great satisfaction, the roots being handsome and perfectly true to the description given in catalogue."—A. W.

"I like Carters' Windsor Mangel very much, and shall certainly grow it next year. My man says there will be as many loads on one acre as there will be on an acre and a half of another sort, and which are growing on either side."—

Rev. S. F.

"Carters' Windsor Mangel is the best crop I have had for several years. The roots are very clean, with little top, and free from fangs."—Sir W. F., Bt.

"I have tried Carters' Windsor Mangel against other sorts, and they produced by far the best roots and the heaviest crop."—T. B.

"The seeds I have had from you have all turned out remarkably well. The Windsor Mangels are the largest I have ever grown."—E. M.

NORTHAMPTON.

"I won the first prize for Mangel easily, in fact, you could have put all the others inside them."—W. L. J.

"I was much pleased with the Windsor Mangel. I won first prize at Northampton."—E. W.

"I ordered Carters' Windsor Mangel for a small farmer in this village, and he is very much pleased with the result. He tells me the roots are the best in the parish."—Miss E. C. S.

NOTTINGHAMSHIRE.

"I am very pleased with Carters' Windsor Mangel. I grew 45 to 50 tons per acre, and can with confidence recommend it."—W. P.

OXFORDSHIRE.

"I am more than pleased with Carters' Windsor Mangel. The roots are the finest I have ever grown."—L. L.

RUTLAND.

"I sowed two acres for trial this year, and they are by far the best of two other lots. I shall sow no other next season."—L.

SHROPSHIRE.

"I find an increase of about five tons per acre in the Windsor Mangel over the other Globe varieties, and shall recommend same to all I can."—S. E.

"Carters' Windsor Mangel has done remarkably well. I tried it against two well-known sorts, and it has produced a heavier crop."—T. J. H.

SOMERSETSHIRE.

"Carters' Windsor Mangel is the best I have ever grown, with smooth skin, and very little top."—W. D. K.

STAFFORDSHIRE.

"Had I have had all Carters' Windsor Mangel I should have had tons to the acre more. No more cheap seed for me."—R. L.

"The wireworm took nearly one-third of the other roots, but never touched the Windsor. The crop must have been 10 to 15 tons more per acre."—W. M.

"It stood the drought better than any other and gave by far the best crop."—W. B.

SUFFOLK.

"Carters' Windsor is the best Mangel seen about here."

J. W.

"I sowed 24 lbs. of Carters' Windsor Mangel, and can confirm all you say about it. It's nothing to find them 25 inches round."—E. A. P.

"Carters' Windsor Mangel has given me every satisfaction. I have 106¾ tumbrel loads off five acres."—W. J.

"Carters' Windsor Prizetaker Mangel proved the best of five sorts I have grown, and I intend to have more another year."—W. S.

SURREY.

"I am perfectly satisfied with Carters' Windsor Mangel, and consider the extra price per pound a good investment."

V. E. H.

"After carefully comparing Carters' Windsor Mangel with others grown under similar conditions, I find them much larger and of excellent quality."—T. W. A. L.

SUSSEX.

"I am glad to say I have been successful in taking first prize for three years with your Windsor Prize Mangel, the Judge remarking that they were the best he had seen for a long time."—T. S.

"I have some very fine roots of Carters' Windsor Mangel. They are the best I ever had, and a good shape."—W. C.

"I have grown Carters' Windsor Mangel, and the roots are magnificent, the skin being smooth, with small top, and they are the talk of the neighbourhood."—S. P.

"My crop of Carters' Windsor Mangel is very satisfactory, weighing 50 tons per acre."—T. J. E. D.

WALES.

"Carters' Windsor Mangel is far superior to seed procured from a local tradesman, and I shall try them again next year."

J. J.

"Carters' Windsor Mangel has done remarkably well. I tried it against seed from two other leading firms, but the 'Windsor' excels. The roots are large and even in shape."

J. M. W.

"Carters' Windsor Mangel are much heavier than any other sort, and shall certainly sow more next year."—S. P.

"I have secured a very heavy crop from Carters' Windsor Mangel, and the roots are the finest I ever saw."—O. G. J.

"I took the County Prize—the roots weighed as much as the second and third lot together."—R. R.

"Carters' Windsor Prizetaker Mangel is the best in the neighbourhood."—J. R.

WESTMORLAND.

"Carters' Windsor Mangel is the best variety that has come under my observation, both in size and quality, and it is a splendid keeper. I can safely say that the crop is from 10 to 20 tons per acre heavier than any other I have grown."—T. T. R.

WILTSHIRE.

"Having tried Carters' Windsor Mangel I can testify to its superior quality, both as regards heavy croppers and good shape."—H. P.

WORCESTERSHIRE.

"The Mangel has turned out extraordinary. There is none like them for miles round."—G. W.

"Carters' Windsor Mangel has given every satisfaction, and the crop is the best in the neighbourhood."—R. F.

YORKSHIRE.

"Windsor Mangel did well, and gave a return of 78 tons per acre."—G. S.

"I have just finished pulling the Windsor Prizetaker Mangel, which, without doubt has its proper name. I sowed two acres the middle of April, and they are the talk of the district, being on the York and Malton roadside. I had one acre measured, and had the large yield of 90 cart loads, which I calculate at least 15 cwt. to the load."—W. W.

"I tried Carters' Windsor Mangel by side of five different varieties, including Yellow Globe, and have 10 tons per acre more of Windsors than any other."—W. W.

"Carters' Windsor Mangel has produced the largest crop I have had during my ten years' occupation."—G. C.

CARTERS' WARDEN YELLOW GLOBE MANGEL.

Photographed and Copyrighted by James Carter & Co.

WHITE-FLESHED.

Carters' Warden Mangel has always been recognised as a very heavy cropping yellow globe that does well upon all soils, and for more than a quarter of a century it stood quite at the top. Its popularity still remains very great, and many farmers prefer it for their general crop to others.

REPORTS FROM GROWERS.

"My crop of Warden Mangel won the Cup for the best in the county of Surrey. It produced 70 tons per acre."—S. E. H.

"I had some of your Wardens—the largest I have ever seen. They weighed 28 and 29 lbs. each."—H. H.

"In the Mangels (Warden Yellow Globe) I grew last year I selected twelve of the finest, which averaged over 20 lbs. weight each. The largest, when trimmed, was 26 lbs. They were not specially cultivated in any way."—C. J. E.

SEED TESTED FOR GERMINATION AND PURITY.

Price **1/2** per lb.; **122/-** per cwt.

Sow 8 pounds per acre.

CARTERS' MANGEL—FIRST PRIZE, DAIRY SHOW, LONDON, 1900, IN COLLECTION OF AGRICULTURAL PRODUCE.

CARTERS' GOLDFINDER MANGEL.

Carters' Goldfinder Mangel was introduced by us in 1895, and has already established itself a favourite with many leading Mangel Growers. The flesh is very firm, and rayed with deep golden rings—a sure sign of rich feeding quality; and evidence of this has been abundantly proved from the Analysis made by Dr. Bernard Dyer, who reported a comparison with the ordinary Yellow Globe as follows:—

"It gives a remarkably Better analysis, showing 13·05 per cent. of total solids as against 10·80 per cent."

In shape the bulb is globular, with a rich deep red toe lightly resting in the soil.

This fine Mangel was awarded First Prize at one of the Exhibitions of the British Dairy Farmers' Association, beating 70 entries, whilst in the 1899 experiments of the Cheshire County Council it came out highest in feeding quality of flesh.

SEED TESTED FOR GERMINATION AND PURITY.

Price **1/3** per lb. **132/-** per cwt.

CARTERS' GOLDEN INTERMEDIATE MANGEL.

Carters' Golden Intermediate Mangel was first introduced by us in 1882, and has steadily worked its way into popular favour until to-day, when it stands at the head of the Intermediate class as representing the most perfect type in the section.

This variety may be to some extent classed together with our Golden Tankard Mangel as crop producers combined with quality, for though individually the roots do not attain to such a size as other Mangel, yet if they are grown closer together in the rows enormous crops may be obtained, whilst they are very rich in saccharine matter and feeding value. The skin is of a deep golden-yellow colour, the flesh partaking very much of the same tint, and possessing the same rich flavour and qualities of the Golden Tankard variety so much relished by stock, and it imparts the valuable property of thickening the cream to a greater extent than has been noticed when other varieties of Mangel have been given to stall-fed cows. It is essentially a Dairy Farmer's Mangel.

Seed tested for germination and purity. Price **1/3** per lb.; **132/-** per cwt.

CARTERS' MANGEL—FIRST PRIZE, DAIRY SHOW, LONDON, 1900,

In the Collection of Agricultural Produce.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' GOLDEN TANKARD MANGEL.

Photographed and Copyrighted by James Carter & Co.

GOLD-FLESHED.

A FINE AND RE-SELECTED STOCK.

Carters' Golden Tankard Mangel is in every sense The Dairy Farmers' Mangel, and will produce enormous crops of highly valuable roots that may stand closer in the rows than many of the coarser-growing Globe varieties. The roots by repeated selections are of a perfect Tankard shape, carrying a very compact foliage, deep green in colour, veined with yellow. The flesh is perfect, of a rich golden yellow, remarkably solid, and proved by analysis to possess a much larger amount of nourishing properties than is found in some other so-called high-feeding strains of Yellow Globe and Long Red Mangels.

The photograph shown above well illustrates the roots as they stand on the ground.

CARTERS' GOLDEN TANKARD MANGEL,

RE-SELECTED STOCK ... ... Price **1/3** per lb.; **132 -** per cwt.

SOW 8 POUNDS PER ACRE.

CARTERS' MANGEL—FIRST PRIZE, DAIRY SHOW, LONDON, 1900,

In the Collection of Agricultural Produce.

CARTERS' MAMMOTH LONG RED MANGEL.

PHOTOGRAPH OF OUR EXHIBIT AT THE CATTLE SHOW, AGRICULTURAL HALL, LONDON.

Photographed and Copyrighted by James Carter & Co.

Carters' Mammoth Long Red Mangel possesses a great reputation. The individual roots, as shown in the prize exhibit above, are massive and well defined. The proportions are evenly balanced, and altogether a very great improvement upon common malformed strains. We recommend it with every confidence as a weight producer upon rich soils, and in other situations where this Mangel suits better than the Globes.

Seed tested for germination and purity, price **1/-** per lb.; **105/-** per cwt.

SOW 8 LBS. PER ACRE. **SPECIAL REDUCTION FOR QUANTITIES.**

CARTERS SUGAR MANGEL.

We highly recommend this to all agriculturists who value the sugar qualities in roots for their live stock. Our Sugar Mangel possesses a combination of the best qualities of a Mangel with those of a Sugar Beet ; being the result of cross fertilisation between the well-known Mammoth Long Red Mangel and the Elite Sugar Beet, renowned for its high sugar value. We have proved that this important combination has been fully realised, not only in our field experiments where we have had special regard to weight of yield per acre, but also in our laboratory analysis of the roots under our new method of testing their feeding properties.

The roots are remarkable for their uniformity in size and symmetry of form. There is no loss in trimming, no valueless portions, and they are perfectly clean and easily lifted. If the rows are sown 20 inches apart and the plants set out 14 inches apart, we have proved in our own experiments that our Sugar Mangel will produce 5 tons to every 4 tons of the ordinary Mangel crop, while the high sugar content of the root, which we have proved by analysis to be 15 per cent. more than that of the sweetest Mangel hitherto offered for sale, gives it a very distinctive character, the value of which we believe will be at once recognised by all stock-keepers. Furthermore, the high density of the root indicates a feeding value not found in ordinary Mangels.

These qualities are increased if our advice of leaving less space between the rows and plants is followed.

The rows should stand 20 inches apart and the plants be set out 14 inches apart.

Sow 9 lbs. per acre. Stock of Seed very limited, price 2/6 per lb.

CARTERS' NEW CENTURY IDEA.

AGRICULTURAL PRODUCE OF HIGH FEEDING VALUE.

From The Times, *February* 11, 1901.

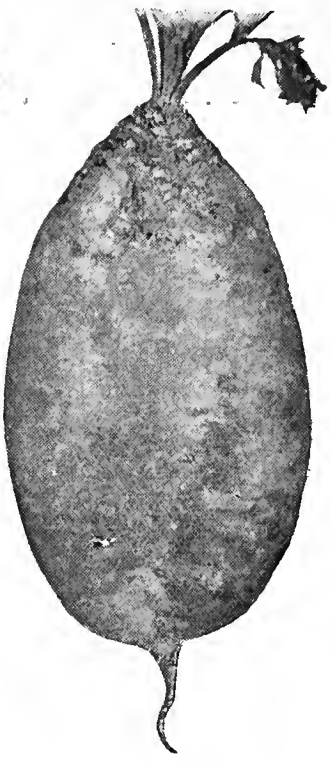
THE results of most field experiments involving the growth of roots are given on the assumption that one ton of roots—be they turnips, or swedes, or mangels—is as good as another. When, for example, the turnip crop is grown in order to test the effects of different manures, and the different mixtures of manures, the weight of roots yielded per acre is commonly taken as the sole indication of the comparative values of the several manurial dressings in the circumstances under which they are applied. We have, on more than one occasion, suggested that the roots themselves should be tested—that their specific gravity should be ascertained as well as the percentage and composition of the solids in their expressed juice—but it is not possible to refer to any recent experiments where this has systematically been done. That roots vary in the percentage of water which they contain is well known, and it is at least possible that of two turnip crops the one giving the greater weight of roots per acre may actually contain less solid matter per acre than the apparently lighter crop. For feeding purposes the latter is the more valuable, and yet the manure that grew the bulkier crop would be regarded as better than that which grew the one returning a smaller gross weight per acre. Sheep-feeders have been told time after time that to give their animals a large quantity of watery turnips is a physiological blunder, because all the water in the roots has to be raised to the temperature of the blood of the sheep which consume them. But what effort has been made in the many field experiments which county council grants and other sources of income have rendered possible during the last decade to determine the percentages of water contained in turnips of the same variety grown under different conditions, manurial or otherwise? If little has been done to determine the percentage of water, still less has been done to control it. The high practical importance of the question is obvious when it is considered that a difference of 1 per cent. in the total solids of a crop of, say, 30 tons of roots per acre means a difference of 672 lb. per acre in the quantity of solid matter elaborated from the air and the soil—in other words, 672 lb. of water of no nutritive value is replaced by 672 lb. of solid matter of very considerable feeding value. Reflections such as these are suggested by a perusal of the striking essay with which Messrs. James Carter & Co., 237, High Holborn, London, preface their new annual list of farm seeds and, to mark the beginning of another century, describe in some detail their "new method in the selection of root crops for seed." The work has been in progress for a number of years, but the public announcement of the method followed and of results obtained has been reserved till the present as an appropriate occasion. They point out that mangolds, for example, contain of water from 85 to 94 per cent. As the 94 per cent. coexists with 6 per cent. of solids, and the 85 per cent. with 15 per cent. of solids, it is obvious that a given weight of the one lot of roots would contain two and a half times as much solid matter as the same weight of the other lot, and their feeding value would be enhanced accordingly, though not necessarily in the same ratio. Swedes have 86 to 92 per cent. of water, yellow turnips 90 to 92, white turnips 92 to 95, carrots 85 to 92, and Kohl rabi 86 to 92 per cent. These figures indicate the difference in value between roots of close, firm, hard texture, on the one hand, and soft, spongy, watery roots on the other. As illustrating what it is in the power of the cultivator to effect by long-continued selection, associated with chemical analysis of the roots, the case of the sugar beet is taken. In this plant, which is closely allied to the mangold, the proportion of sugar in the roots has been increased from 5 per cent. to a possible 20 per cent. It is true that Continental growers were occupied upon this work throughout the nineteenth century, but to increase the saccharine matter fourfold is a great result to attain. After describing their own experiments, Messrs. Carter enunciate the following conclusions:—(1) All roots have a tendency to contain an excess of water, which in itself is valueless. (2) Some varieties contain water to a harmful degree. (3) A small deviation in the percentage of water alters materially the value of the crop in feeding properties. (4) Five tons of one crop may contain as much solid food as ten tons of another. (5) The obvious necessity arises of ascertaining the weight of solids in any root crop. (6) The specific gravity of a root is a guide to its keeping quality. (7) The specific gravity of the juice is a guide to its feeding quality. (8) When the density is highest in both the juice and the whole root, the value of the stock is materially increased. (9) The increase of saccharine matter in mangolds and all other roots goes hand-in-hand with the increase of feeding matter. (10) The quantity of dry-matter is not necessarily a determining factor in the feeding value of roots. The nature of the testing apparatus employed and the means whereby strains of roots of superior feeding value are fixed and perpetuated are described in sufficient detail in the essay. The great object in view—and it is one that deserves every encouragement—is to increase the quantity of available food produced per acre by the growth of root crops.

THE QUEEN'S PRIZE FOR FARMING.

This important Cup, annually given by Her late Majesty the Queen in memory of The Prince Consort to the Royal South Bucks Agricultural Association, was won last year by Mr. John Kinross, of Riding Court, Datchet. His exhibit included

30 ACRES OF CARTERS' WINDSOR MANGEL.

CARTERS' GOLDEN TANKARD.



Photographed and Copyrighted by James Carter & Co.

CARTERS' WARDEN.

CARTERS' INTERMEDIATE.

CARTERS' MAMMOTH PRIZE LONG RED.

COMPLETE LIST OF MANGEL.

SOW 8 POUNDS TO THE ACRE.

CARTERS' PEDIGREE MANGEL STOCKS, see pages 40 to 46.

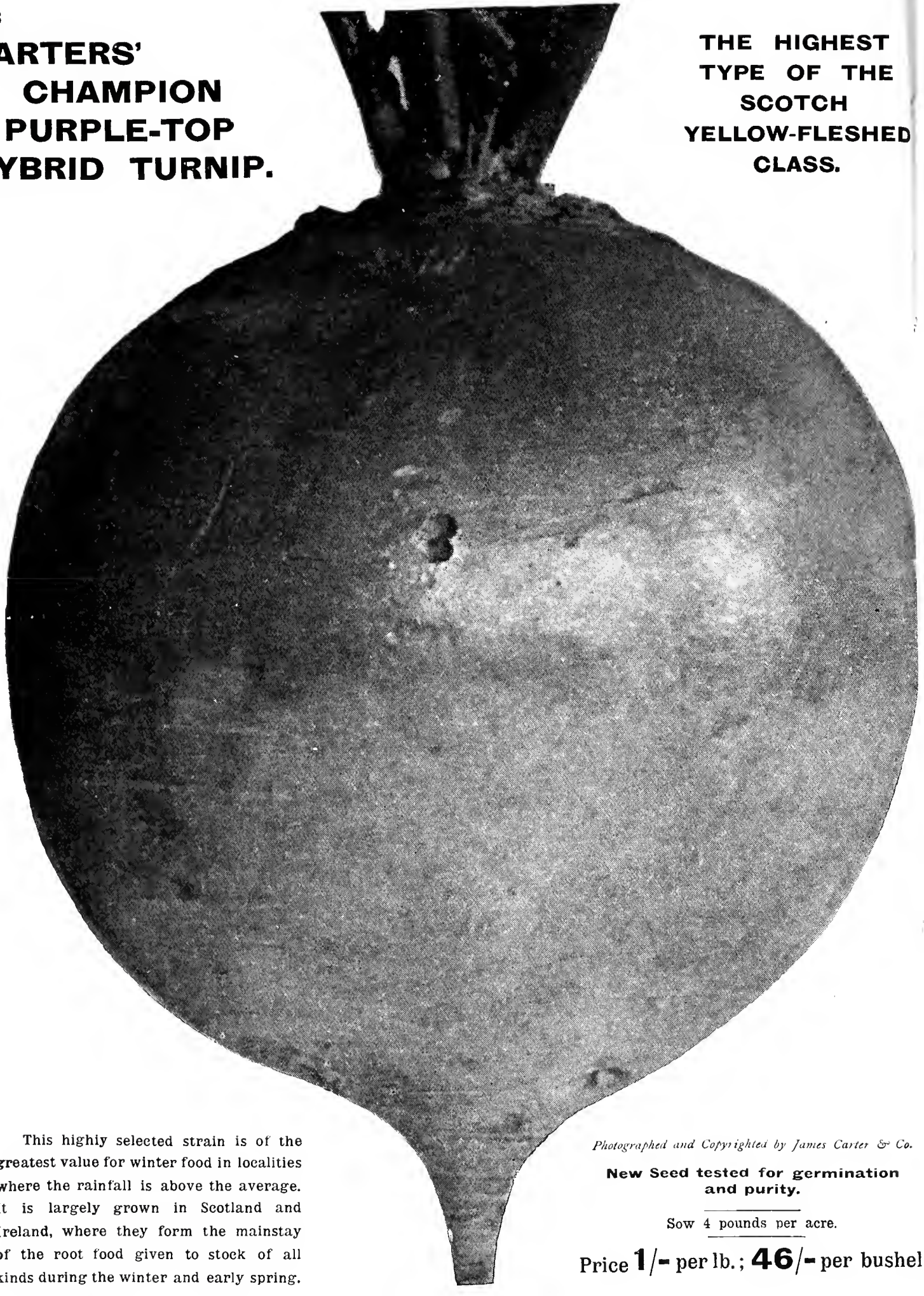
Seed tested for germination and purity.

	Per cwt. s.	d.	Per lb. s.	d.
Carters' Windsor Prizetaker (see pages 40 to 42)	156	0	1	6
Carters' Warden (see page 43)	122	0	1	2
Carters' Elephant Yellow Globe Mangel. This root grows to an immense size, but is coarser in all respects to our Windsor Prizetaker (page 40) or Warden (page 43); mostly yellow globes, but we do not guarantee absolute trueness of shape or colour	68	0	0	8
Good Selected Orange Globe	85	0	0	10
Carters' Goldfinder (see page 44)	132	0	1	3
Golden Globe	132	0	1	3
Carters' Golden Tankard (see page 45)	132	0	1	3
Ordinary Golden Tankard	105	0	1	0
Carters' Golden Intermediate (see page 44)	132	0	1	3
Champion Yellow Intermediate, a heavy variety	98	0	1	0
Carters' Improved Mammoth Long Red (see opposite) ...	105	0	1	0
Elvetham Long Red, a good type of the old Long Red	85	0	0	10
Corner's Devonshire Small-topped Yellow Globe, a well-known variety in the West of England	132	0	1	3
Carters' Improved Red Globe, a fine stock of the Red Globe ...	98	0	1	0
Monarch	105	0	1	0
Long Yellow	98	0	1	0

We always charge specially reduced rates for large quantities, whether asked to do so or not.

CARTERS' CHAMPION PURPLE-TOP HYBRID TURNIP.

THE HIGHEST TYPE OF THE SCOTCH YELLOW-FLESHED CLASS.



This highly selected strain is of the greatest value for winter food in localities where the rainfall is above the average. It is largely grown in Scotland and Ireland, where they form the mainstay of the root food given to stock of all kinds during the winter and early spring.

Photographed and Copyrighted by James Carter & Co.

New Seed tested for germination and purity.

Sow 4 pounds per acre.

Price **1/-** per lb.; **46/-** per bushel.

CARTERS' CHAMPION GREEN TOP HYBRID TURNIP.

A very superior strain to the ordinary Green Top Scotch. It has a fine orange-coloured flesh, firm in texture, and is a capital keeper. A counterpart, except in colour, of our Champion Purple Top Hybrid, described on page 50.

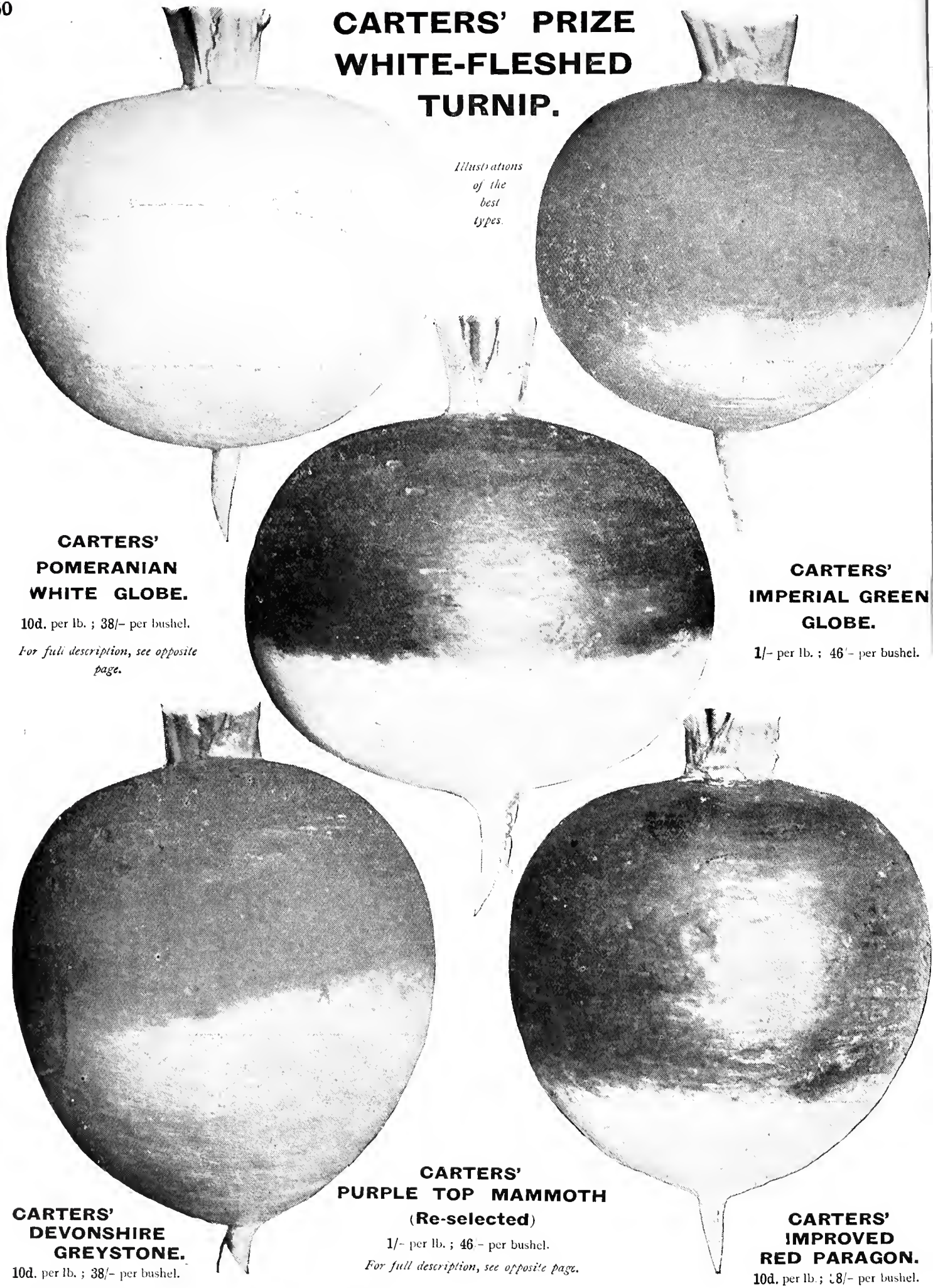
Photographed and Copyrighted by James Carter & Co.

NEW SEED TESTED FOR GERMINATION AND PURITY.

Price **11d.** per lb., **43/-** per bushel.

CARTERS' PRIZE WHITE-FLESHED TURNIP.

Illustrations of the best types.



CARTERS' POMERANIAN WHITE GLOBE.

10d. per lb. ; 38/- per bushel.

For full description, see opposite page.

CARTERS' IMPERIAL GREEN GLOBE.

1/- per lb. ; 46/- per bushel.

CARTERS' DEVONSHIRE GREYSTONE.

10d. per lb. ; 38/- per bushel.

CARTERS' PURPLE TOP MAMMOTH (Re-selected)

1/- per lb. ; 46/- per bushel.

For full description, see opposite page.

CARTERS' IMPROVED RED PARAGON.

10d. per lb. ; 38/- per bushel.

CARTERS' TURNIP SEEDS.

Photographed and Copyrighted THRASHING TURNIP SEEDS. [*by James Carter & Co.*

WHITE-FLESHED VARIETIES. Sow 4 lbs. per acre.

	Per Bushel. s.	d.	Per Pound s	d.
Carters' Pomeranian White Globe (*See Illustration opposite*) ... ... A very handsome all white variety, well furnished up to the neck. One of the best for very earliest consumption; largely grown in the Eastern Counties.	38	0	0	10
Carters' Devonshire Greystone (*See Illustration opposite*) ... ... A Grey or Mottled-top variety, valuable for early use, and very popular in the Southern Counties.	38	0	0	10
Green Round	34	0	0	9
Green Globe, ordinary	38	0	0	10
Carters' Purple-top Mammoth (RE-SELECTED.) (*See Illustration opposite*) ... ... We have for many years recommended this greatly improved type of purple-topped Turnip, which has now become probably the most popular and largely cultivated variety for early feed in cultivation. It is also very extensively grown in the Colonies, and is unquestionably one of the quickest-growing, largest, and most solid white-fleshed turnip we have for early use. The flesh is very firm and juicy.	46	0	1	0
Carters' Imperial Green Globe (*See Illustration opposite*) ... ... Our stock of this invaluable winter Turnip is admitted to be perfect. It is very distinct from and superior to the ordinary types of Green Globe Turnip. Being exceedingly hardy, if not sown too early it will stand the severity of Winter almost equal to the Swede. Visitors to the Smithfield and other Shows will remember the magnificent examples we have exhibited from time to time.	46	0	1	0
Carters' Improved Red Paragon (*See Illustration opposite.*) A popular early variety ...	38	0	0	10
Carters' Re-selected Red Globe. Much used in Lincolnshire	38	0	0	10
Stratton Hardy Green Round. A hardy white fleshed variety for late use	38	0	0	10
Carters' Early Six-Weeks Stubble, or Stone. Quick-growing	60	0	1	3
White Stone	38	0	0	10

YELLOW-FLESHED TURNIPS.

Carters' First Crop Purple-top Hybrid } These highly selected stocks are much earlier than the ordinary types	...		1	6
Carters' Lightning Green-top Hybrid }	...		1	6
Carters' Champion Green-top Hybrid. (*For full particulars, with Illustration, see page* 48)	43	0	0	11
Aberdeen, Green-top	43	0	0	11
Carters' Champion Purple-top Hybrid. (*For full particulars, with Illustration, see page* 49)	46	0	1	0
Aberdeen, Purple-top	43	0	0	11
Old Meldrum	38	0	0	10
Drummond's Early Field Yellow. A small, quick-growing, green-top variety, very desirable for early feeding	38	0	0	10
Robinson's Golden Ball or Orange Jelly. A very true stock, useful for late sowing	38	0	0	10
Fosterton Green-top Hybrid. We offer a choice selected stock	38	0	0	10

OTHER TURNIPS WE CAN SUPPLY.

	lb. s.	d.		lb. s.	d.		lb. s.	d.		lb. s	d.
White Globe	0	10	Mottled Stone	0	10	Skirving's Purple-top ...	0	10	Green-top Scotch	0	10
White Tankard	1	0	Green Tankard	1	0	Lincolnshire Red Globe ...	0	10	Purple-top Scotch	0	10
Red Tankard	1	0	Dale's Hybrid	0	10	Eclipse, Yellow	0	10	Tankard Yellow, or Tankard Swede	1	6

WHITE FIELD CARROTS.

CARTERS' 100 TON,

A short bulky growing white fleshed Carrot, with a small top, that requires little trouble in cultivating and harvesting.

A Prodigious Cropper.

"I have a splendid crop of White Carrots from your Seeds. My neighbours say they never saw such a fine lot."—E. B.

Price
3/6
per pound.

CARTERS' GIANT WILTSHIRE WHITE CARROT.

This large variety has become exceedingly popular, and our stock is now as perfect as it is possible to make it. It is a great producer of highly nutritious roots that come away very clean from the land, and are a remunerative crop.

"You will be glad to hear that your Carrots, as grown here, have been making £2 per ton. The Giant Wiltshire White turned out splendidly."—R. F. H. W.

Price **3/0** per lb.

CARTERS' IMPROVED WHITE BELGIAN.—New seed tested for germination and purity, per lb. **3/0.**

White Belgian.—Ordinary, per lb. **1/9.**

Carters' Carrot Seed is cleaned, and can be sown in an ordinary drill.

ORANGE & RED FIELD CARROTS.

Sow 8 pounds per acre.

CARTERS' ORANGE GIANT.

Carters' Orange Giant is the best form of Orange or Yellow Cattle Carrot we know of, and we have tested every other variety in commerce side by side with it in our Trial Grounds.

The Roots grow to an enormous size, are of excellent quality, clean shaped, and possess very high feeding properties.

This Carrot is specially adapted for sowing upon strong land.

Photographed and Copyrighted by James Carter & Co.

"I am much pleased with my crop of Carrots. It is the best that has ever been seen here. People came for miles to look at them. I sent three to a show and they weighed 30½ lbs. Many wanted to know where I procured the seed from. They made £2 per ton, and some called them half-bred Mangels."—J. G.

"Carters' Orange Giant Carrot turned out remarkably well, at the rate of 30 tons per acre."—G. C.

"The Orange Giant were the talk of the district."—W. J. L.

"Your Orange Giant Carrot is a very productive and nutritious root. I have some that measure 16 inches round."—G. C.

New Seed tested for germination and purity.

Price 2/6 per pound.

CARTERS' KANGAROO.

A red field Carrot of enormous proportions. It exceeds other red varieties in the size of its individual roots, and in the yield per acre. It is of great thickness at the shoulder and middle, so that it succeeds in shallow soils where longer varieties are at a disadvantage. Its flesh is solid and nutritious, and according to our comparative trials, it is a very fine carrot.

Price 5/0 per lb.

OTHER SELECT VARIETIES FOR FIELD PLANTING.

CARTERS' GREEN-TOP ORANGE or YELLOW BELGIAN. —A heavy cropper per lb. **1s. 9d.**

YELLOW INTERMEDIATE. — Very superior ... per lb. **2s. 6d.**

LARGE RED CATTLE per lb. **1s. 9d.**

CARTERS' IMPROVED RED ALTRINCHAM. —The best red for good soils per lb. **3s. 0d.**

RED ALTRINCHAM.— Ordinary ... per lb. **2s. 0d.**

IMPROVED RED INTERMEDIATE. —The best for shallow soils per lb. **3s. 6d.**

RED INTERMEDIATE. —Ordinary stock per lb. **2s. 6d.**

Carters' Carrot Seed is cleaned, and can be sown in an ordinary drill.

Photographed and Copyrighted] A GOOD CROP OF TRIFOLIUM. *[by James Carter & Co.*

GREEN CROPS ALL THE YEAR ROUND.

We are frequently consulted upon this important subject by Customers who have experienced the want of a sufficient supply of Green Food for Stock, especially in the early Autumn.

The following Selections are based upon practical experience and observation, and may be relied upon, under fair conditions, to supply Green Crops all the year round:—

SOW IN MARCH.

Quantity to be sown per Acre.

4 Bushels of	Spring Tares...	For consumption in August and September.
4 Bushels of	Carters' Superfine Italian Rye Grass	For consumption in Summer.
5 Pounds of	Carters' Marblehead Drumhead Cabbage	For consumption in Winter and Spring.
6 Pounds of	Carters' Mammoth Beef-heart Cabbage	For consumption in September and October.
40 Pounds of	Carters' Lucerne Mixture	For consumption next Spring and Summer.

SOW IN APRIL.

5 Pounds of	Carters' Thousand-headed Kale	For consumption in September and October.
24 Pounds of	Lucerne	For consumption in Summer of next year.
8 Pounds of	Carters' Mangel for Main Crops	For consumption in Winter.
4 Bushels of	Carters' Superfine Italian Rye Grass	For consumption in Summer.

SOW IN MAY.

4 Pounds of	Carters' Holborn Elephant Swede for Main Crop	For consumption in Winter.
10 Pounds of	Rape	For consumption in Autumn.
20 Pounds of	Mustard	For consumption in July and August.
4 Bushels of	Carters' Superfine Italian Rye Grass	For consumption in late Summer.

SOW IN JUNE.

2 Bushels of	Carters' Maize	For consumption in August and September.
16 Pounds of	Carters' Sorghum Saccharatum	For consumption in August and September.
4 Pounds of	Carters' Turnips for succession Crops	For consumption in Autumn and Winter.

SOW IN JULY.

10 Pounds of	Rape	For consumption in Winter.
20 Pounds of	Mustard	For consumption in Autumn or ploughing in.
5 Pounds of	Carters' Stubble Turnip	For consumption in September and October.
5 Pounds of	Carters' Thousand-headed Kale	For consumption next Spring.
4 Bushels of	Carters' Superfine Italian Rye Grass	For consumption in Autumn.
4 Bushels of	Spring Tares...	For consumption in Autumn.

SOW IN AUGUST.

30 Pounds of	Early Red Trifolium—(*Trifolium may be sown upon Corn Stubble.*)	For consumption in May.
30 Pounds of	Late Red Trifolium	For consumption in June.
30 Pounds of	Late White Trifolium	For consumption in June.
5 Pounds of	Carters' Marblehead Drumhead Cabbage	For consumption next Summer.
6 Pounds of	Carters' Mammoth Beef-heart Cabbage	For consumption in May and June.
4 Bushels of	Carters' Superfine Italian Rye Grass	For consumption in late Autumn.
3 Bushels of	Carters' Autumn Mixture of Grasses and Clovers	For consumption in Winter and Spring.
4 Bushels of	Rye	For consumption in Winter and Spring.

SOW IN SEPTEMBER.

4 Bushels of	Carters' Superfine Italian Rye Grass	For consumption in Spring.
4 Bushels of	Winter Tares	For consumption in Spring.
3 Bushels of	Re-selected Winter Oats	For Winter and Spring feed.
1½ Bushels of	Re-selected Winter Barley	For Winter and Spring feed.
4 Bushels of	Rye	For Winter and Spring feed.

In some seasons the September sowings may be extended throughout October and November.

SPRING WHEAT.

Carters' Earliest of All.—In this Selection we have unquestionably **the earliest Wheat in Cultivation.** It is very productive, habit semi-erect, and should prove specially valuable in those districts where the summer seasons are short and a rapid-ripening Wheat required. Straw medium length, rather thin, but stands stiff and strong on the ground; pale colour; bold amber-coloured grain... ... ... } Price on application.

Sow 3 Bushels per Acre.

Mr. T. Besent, Steward to the Rt. Hon. Lord Rosebery, writes:—

"Your Earliest of All Wheat is undoubtedly the best Spring Wheat at the present time; it was sown March 12th, and harvested same time as Squarehead Master sown the first week in October."

CARTERS' MODEL KOHL RABI.

A valuable substitute for the Turnip where that crop suffers from the grub. It is very hardy, and on account of the very convenient form in which the bulb is produced above ground, it can be fed off without waste. It will stand transplanting better than other root crops, which renders it valuable for filling up blanks. Its extended cultivation is recommended for both ewes and lambs. *Sow 4 lbs. per acre in March and April.*

Photographed and Copyrighted by James Carter & Co.

CARTERS' MODEL.

A green-topped variety, with a small top.

Price 3/6 per lb.

CARTERS' IMPERIAL GREEN.

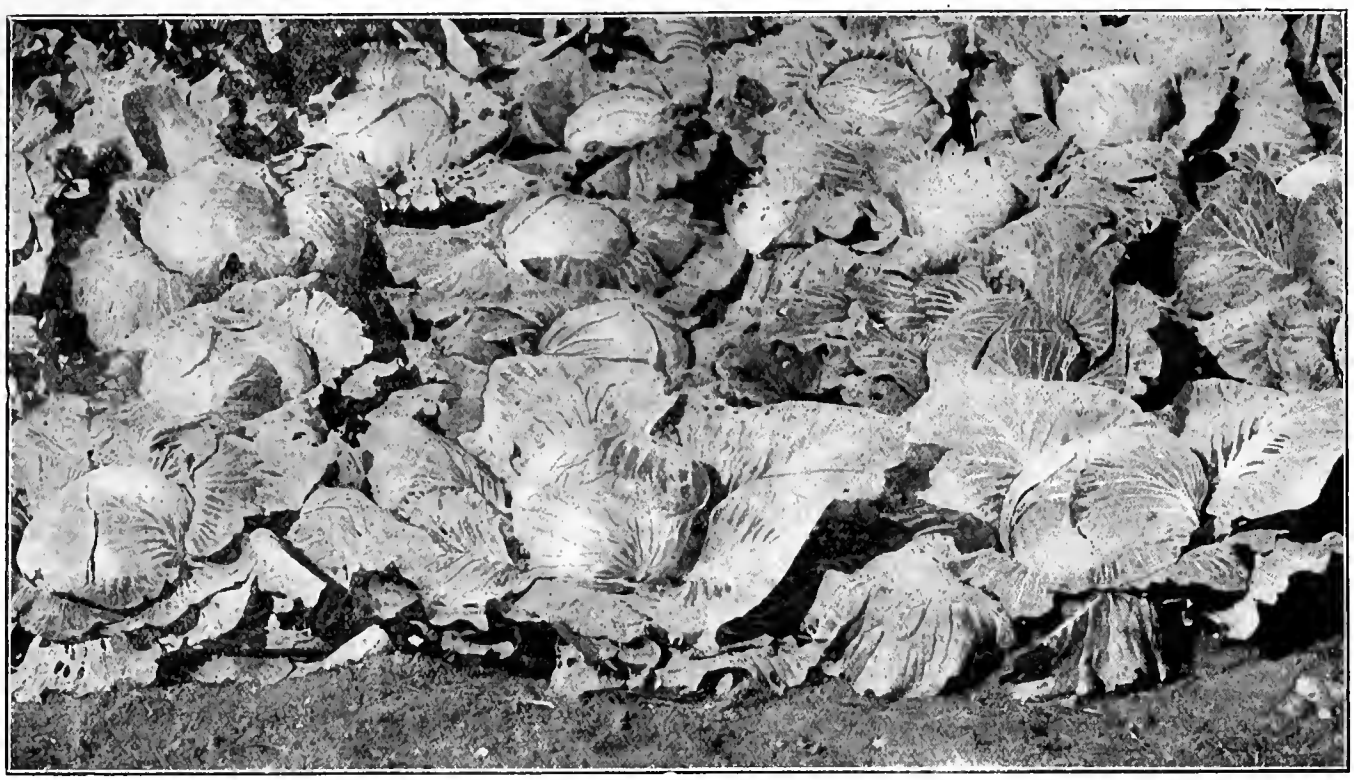
A large-rooted variety, with a luxuriant top, preferred in cold soils.

Price 3/6 per lb.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CATTLE CABBAGE.

Drill 5 to 6 lbs. per acre. For transplanting, sow 2 lbs. per acre.



Photographed and Copyrighted by James Carter & Co.

Carters' Monster Drumhead. *(See above Illustration.)*

A large Cabbage of the Drumhead type, and produces an enormous bulk of solid food of very superior feeding properties. If sown in March and April it will come into use during the following winter. If sown in August it may be used the following summer.

Price 5s. per pound.

Carters' Improved Early Oxheart.

This is a pointed Cabbage, growing to a good size, with remarkably firm and solid heart. Drilled or planted about 20 inches apart in the row, and 24 inches apart from row to row, an extraordinary crop can be produced in a few months. Sow in spring, ready end of summer

Price 4s. 6d. per pound.

Carters' Improved Early Drumhead.

There is no Cattle Cabbage more necessary to the Dairy Farmer or Flockmaster than this variety. Sown at the usual time in March it will produce a valuable and heavy crop of feed in the autumn months of the same year, whereas the ordinary Drumhead sown at the same period would be only half-grown.

Price 5s. per pound.

Carters' Flat Pole.

Large and solid headed. The true West of England stock.

Price 4s. 6d. per pound.

Carters' Mammoth Beefheart.

One of the best main-crop Cabbages in cultivation; very large firm heads of fine flavour, very few outside leaves, and does not readily run. Invaluable for early winter feeding. Much superior to Enfield Market and Defiance.

Price 5s. 6d. per pound.

Carters' Red Sheepfold.

The Red Cabbage is being extensively grown for summer sheep feed, inasmuch as this variety stands longer upon the land without bursting than many of the Green Cabbages, whilst its feeding properties leave nothing to be desired. We were much pleased with some magnificent fields of Red Cabbage on the farms of a large agriculturist in Bedfordshire, and from the manner in which a fine healthy flock of sheep consumed every vestige of the heads there can be no doubt as to its quality. As a "change" food crop it is invaluable.

Price 4s. per pound.

	Per lb.—*s.*	*d.*
Carters' Marblehead Drumhead—Very scarce	5	0
Robinson's Drumhead	3	0
Carters' Selected Enfield Market—Very choice	4	0
Oxheart Sheepfold	5	6
Common Drumhead	3	0
Early Battersea	3	6
Purple Sheepfold	4	0
Drumhead Savoy	4	0
Cottagers' Kale	3	6
Carters' Thousand-Headed Kale	2	6
Thousand-Headed Kale, Ordinary Stock	2	0
Purple Sprouting Broccoli	4	0

We publish a useful Article, entitled "CABBAGE AS A FIELD CROP," in Carters' "Practical Farmer." Price 1s., post free; gratis to Customers.

THOUSAND-HEADED KALE.

A VALUABLE FOOD FOR SHEEP AND LAMBS.

RUSSELL'S TRUE STOCK.

Photographed and Copyrighted by James Carter & Co.

We have for many years advocated the great claims that this useful plant has upon Sheep Farmers. The simplicity and consequent economy in its culture, the enormous crops it produces, with its valuable feeding properties during dried-up seasons, should ensure a large breadth upon every Flockmaster's Estate.

THOUSAND-HEADED KALE—Russell's True Stock. New Seed tested for germination and purity. Price 2/6 per pound. Very scarce.

Ordinary Stock, 2/- per lb.

Drill 6 lbs. per acre. Sow 2 lbs. per acre for transplanting.

WE PRINT A USEFUL ARTICLE ON THE ALL-YEAR-ROUND CULTURE OF THIS CROP IN CARTERS' "PRACTICAL FARMER."

PRICE 1/-, FREE TO CUSTOMERS.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

Photographed and Copyrighted by James Carter & Co.

STACKS OF SELECTED SEED CORN ON CARTERS' SEED FARMS IN ESSEX.

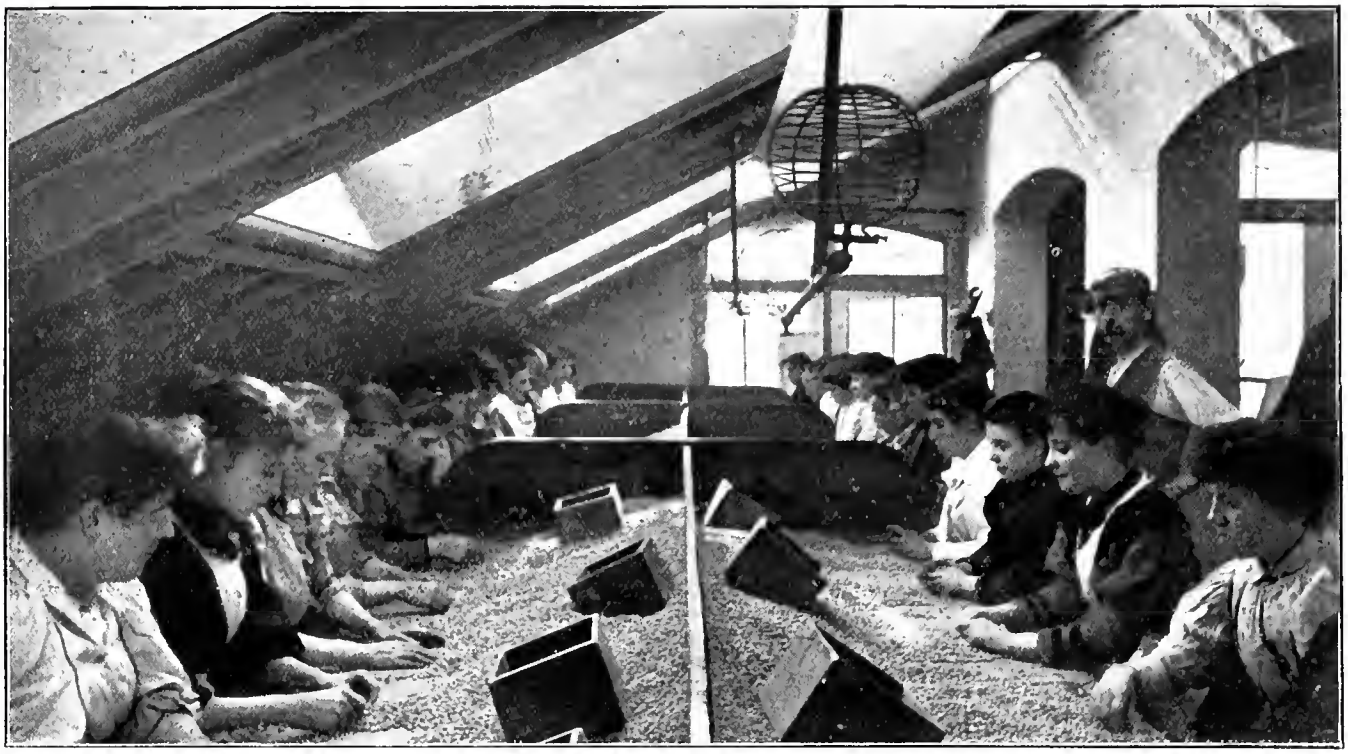
A CHANGE OF SEED CORN ALWAYS PAYS.

The Illustrations on the opposite page demonstrate very clearly the unique system we adopt to keep our Seed Corn true to name and character. The question of sowing a selected stock is an item of the greatest importance to the British farmer to-day, who must grow varieties that give a great weight per acre of high-class grain that will fetch top price on the market.

[From the *Daily Mail*, January 14th, 1901.]

"Last year, one and a half million quarters of barley were displaced by malt substitutes, which means that 500,000 acres—on the fourfield system—went out of barley cultivation. Moreover, two millions of acres, now lying waste, could be devoted to barley if the demand for that grain were increased by the proscription of these unwholesome chemical substitutes."

For full particulars of our choice stocks of Oats and Barley, see pages 60 to 64.



Photographed and Copyrighted by James Carter & Co.

HANDPICKING SEED IN OUR WAREHOUSE AFTER MACHINE CLEANING.

Photographed and Copyrighted by James Carter & Co.

PICKING OUT UNTRUE EARS IN OUR CORNFIELDS.

This operation is undertaken directly the ears show, and again before being cut by the machine.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

CARTERS' GOLDEN OAT.

A NEW OAT LIKELY TO BECOME POPULAR.

GOLDEN GRAIN AND GOLDEN STRAW.

GOLDEN GRAIN.

GOLDEN STRAW.

(Photographed and Copyrighted by James Carter & Co.)

STOCK VERY LIMITED—OFFERED ONLY SO LONG AS SUPPLIES LAST.

HAND-PICKED SEED—

7/6 per bushel; 55/- per quarter.

CARTERS' WHITE CLUSTER OAT.

THE HEAVIEST, THE EARLIEST, THE MOST PROLIFIC AND THINNEST SKINNED WHITE OAT IN CULTIVATION.

Some Important Prizes, 1900.

FIRST PRIZE, Birmingham.

Beating several largely advertised varieties.

CARTERS' WHITE CLUSTER OAT.

Photographed and Copyrighted by James Carter & Co.

HAND-PICKED SEED—

7/6 per bushel; 55/- per quarter.

Sow 3 bushels per acre.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

Photographed and Copyrighted by James Carter & Co.

CARTERS' BLACK TARTAR OAT.

EVIDENCE OF SUPERIOR MERIT.

"I have just thrashed a crop of your Black Tartar Oats from seed supplied by you last Spring. It is the heaviest I have ever grown, **yielding 112 bushels per acre.** The grain is well coloured."—Mr. A. OFFER, Steward to JOHN WARREN, Esq., Handcross Park.

A RE-SELECTED STOCK.

HAND-PICKED SEED.

7/6 per bushel; **55/-** per quarter.

CARTERS' TRIUMPH WHITE OAT.

A prolific bearer. Largely grown for feeding pedigree horses.

HAND-PICKED SEED.

7/6 per bushel; **55/-** per quarter.

CARTERS' SIRDAR.

A very robust cluster-headed Oat.

HAND-PICKED SEED.

Price **7/6** per bushel; **55/-** per quarter.

ABUNDANCE.

A robust growing cluster-headed Oat.

OUR STOCK HAS BEEN RE-SELECTED.

Hand-picked Seed.

Price **6/6** per bushel; **50/-** per quarter.

TARTAR KING.

A side-bearing White Oat, tall and prolific.

WE OFFER A RE-SELECTED STOCK.

Hand-picked Seed.

Price **7/6** per bushel; **55/-** per quarter.

NEWMARKET OAT.

Hand-picked Seed.

Price **6/6** per bushel; **50/-** per quarter.

WHITE POTATOE OAT.

Hand-picked Seed.

Price **6/6** per bushel; **50/-** per quarter.

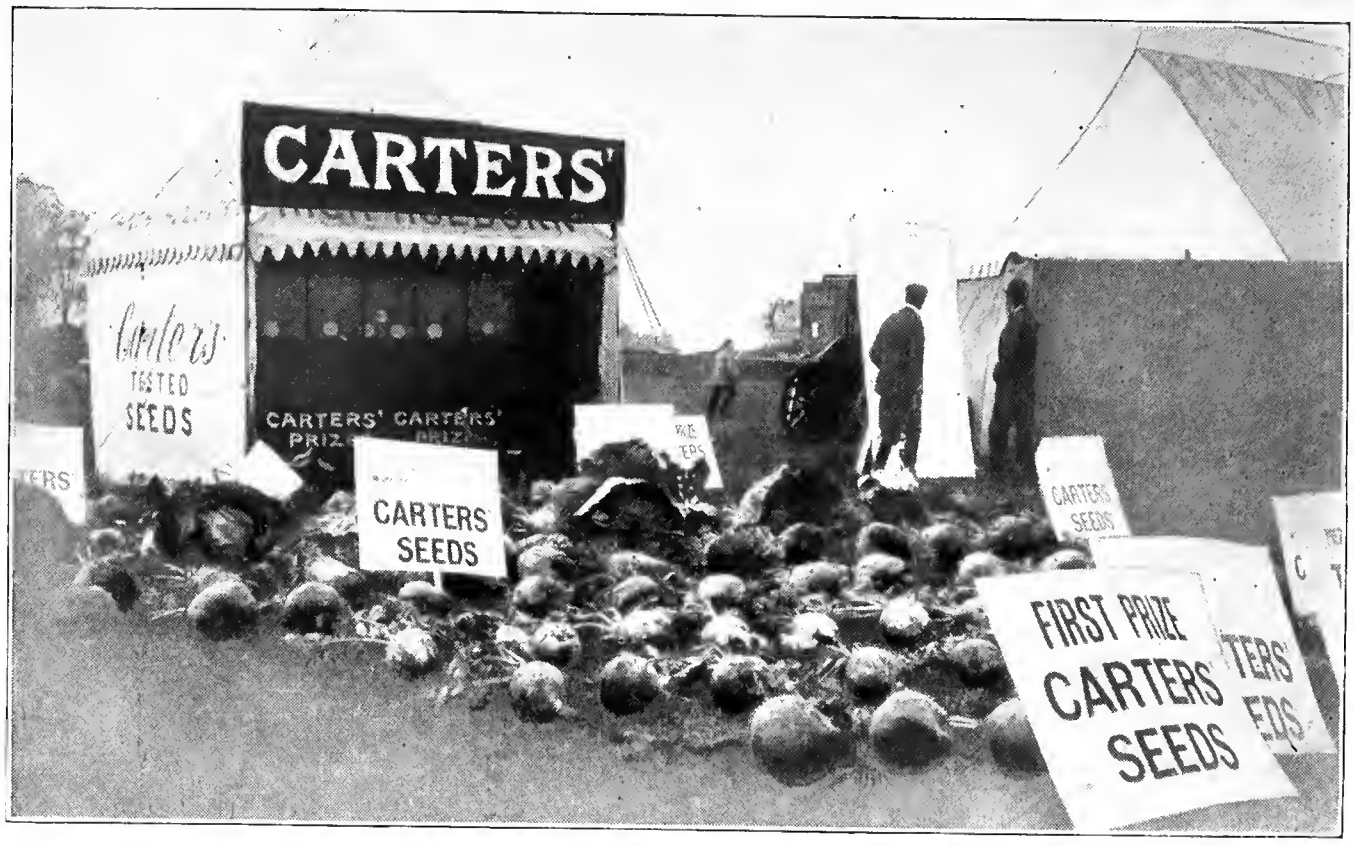
SOW THREE BUSHELS PER ACRE.

REGISTERED TRADE MARK—TWO CARTERS.

PRIZES

Offered to Messrs. CARTERS' CUSTOMERS for COMPETITION during the Season of 1901.

Subject to acceptance by the various Societies. For further particulars, see Societies' Schedules.



Photographed and Copyrighted by James Carter & Co.

MESSRS. CARTERS' EXHIBIT AT THE ROYAL SOUTH BUCKS ROOT SHOW.

MESSRS. CARTERS' PRIZES FOR 1901.

JAMES CARTER & CO., Seed Merchants, of 237, 238, and 97, High Holborn, London, undertake, upon being furnished with authentic evidence from the Secretary of any Agricultural Society in the United Kingdom, to duplicate all First and Second Awards made to Exhibitors who show the products of Farm Seeds, from purchases above 20s. in value, made direct from Messrs. Carters' Establishment during the 12 months ending July 31st, 1901. These said products to be of the Exhibitor's own growth, and in case of any dispute the copy of invoice may be required. These Prizes are available in the Society's Open Classes only. Country Seedsmen's and other Special Prizes will not be considered. Messrs. Carters' premium will not exceed the value of customer's purchase, or in any case £5—that is to say, if Messrs. Carters' customer is awarded any open prize subject to all conditions it will be duplicated by Messrs. Carter in Silver Plate up to £5 in value, according to the amount of the prize won. If above £5 in value, Messrs. Carters' extra premium will not exceed this amount.

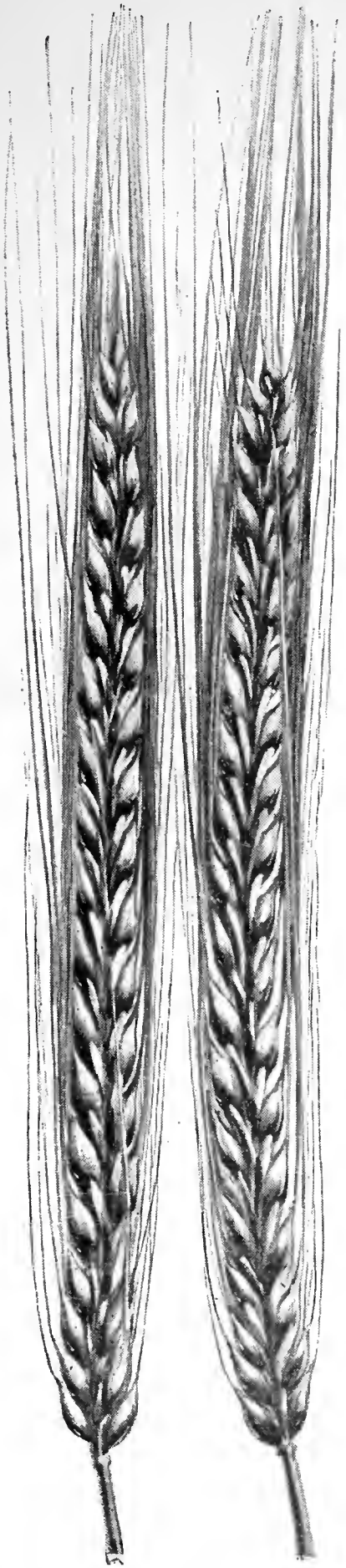
Customers intending to claim the advantages of these Special Prizes must notify the fact to Messrs. Carter a fortnight before the day of the Show, stating the variety or varieties of produce they intend to exhibit, or in the case of acreages, what they have entered, when, if occasion requires it, we will send neatly printed cards, which must be exposed to view on the exhibit during the whole time of the Exhibition. No other placards, except the official cards of the Society, will be permitted on these exhibits.

If this offer does not appear in the Prize Schedules of the Agricultural Shows in our customer's district, our offer must be considered cancelled, unless some special arrangements are made direct between us and our customer two weeks before the exhibit is staged.

EXAMPLE :—If £5, £3, and £2 are offered by the Society as Prizes for, say, the best three acres of mangel and swede, James Carter & Co. will award an equal amount in Silver Plate, if their customer gains one or other of them, and has carried out the above conditions. If the Society offers £10 or £20 for acreage crops, or for best cultivations, Messrs. Carters' premium will not exceed £5 in value.

These Prizes are open to Landowners (or through their Agent, Steward, or Bailiff) and Tenant Farmers, but not available for Seed Dealers, and Seed Merchants, or Seedsmen's Agents.

CARTERS' PRIZE PROLIFIC BARLEY.



Photographed from Nature and Copyrighted by J. C. & Co.

Originally Selected from The Chevalier, and recognised as the highest type of this popular Maltster's Barley.

THE BEST LONG-EARED BARLEY IN CULTIVATION.

As grown upon the Royal Estate at Windsor.

With every indication of assured interests and success the Brewers' Exhibition was opened at the Agricultural Hall, and from an early hour large numbers of visitors, chiefly associated with the licensed victualling and catering trades, thronged the great building, to inspect the many novelties on view. The sections devoted to malting barleys and hops are a notable feature of this year's display, and widespread gratification is expressed that the Queen has recognised the value of the work the show is doing in fostering this important branch of agriculture by sending a large sample of March sown barley from the Prince Consort's Farm, which was pronounced by experts to be of admirable quality.

"THE DAILY TELEGRAPH."

AWARDED SEVERAL FIRST PRIZES,

MALTSTER'S EXHIBITION, LONDON, 1900.

"I bought 1 sack of your Prize Prolific Barley. With it I sowed 3 acres, and from it I obtained 27 quarters head barley, besides tailings. I was very pleased with the Seed."—E. A. W.

"I am well satisfied with Carters' Prize Prolific Barley. From 9 bushels I had 39 quarters of the best Barley that has been seen in this neighbourhood."
W. W.

"I have a field of 12 acres of Carters' Prize Prolific Barley, which looks splendid."—E. J. B.

"Carters' Prize Prolific Barley is much better than any in this neighbourhood; it stood up well during the rough stormy weather."—J. C.

"Carters' Prize Prolific Barley is better quality by 6s. per quarter than any other I have grown this year, and I believe I have 8 bushels more per acre."
T. C.

"I am well pleased with Carters' Prize Prolific Barley. I drilled three kinds in the same field, and Carters' variety produced two sacks per acre more than the others. I sent a sample to our Show to-day and was awarded First Prize."—A. T.

"The Barley (Carters' Prize Prolific) I had from you is the finest crop for miles round. I am only sorry I did not put in 20 acres."—Rev. G. M.

"Carters' Prize Prolific Barley answers well; it has fetched the best prices for malting Barley around this neighbourhood."—W. R.

"The Barley from Carters' seed is by far the best crop I have, and I am well pleased with it."—J. S.

"The yield of Carters' Prize Barley was very good, beating another sort by 6 bushels per acre, and yielding 8½ quarters per acre."—R. L. C.

"I have made the highest price for Barley of anyone round this county with Carters' Prize Prolific. Both my employer and myself are greatly pleased with the variety."—H. W.

"I have taken the Silver Cup at our Show four years out of five with Carters' Prize Prolific Barley."
G. W.

"Carters' Prize Prolific Barley has produced a heavy crop of fine quality. I only drilled half the usual quantity per acre."—J. A.

PRICE 10/6 PER BUSHEL; 75/- PER QUARTER.

It is only necessary to sow 7 to 8 pecks per acre of this highly selected Barley.

Reduced Rates for more than one Quarter.

Ten Thousand Bushels of this Barley were purchased by the Canadian Government for replenishing the stocks of the Country.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

THE "GOLDTHORPE" BARLEY.

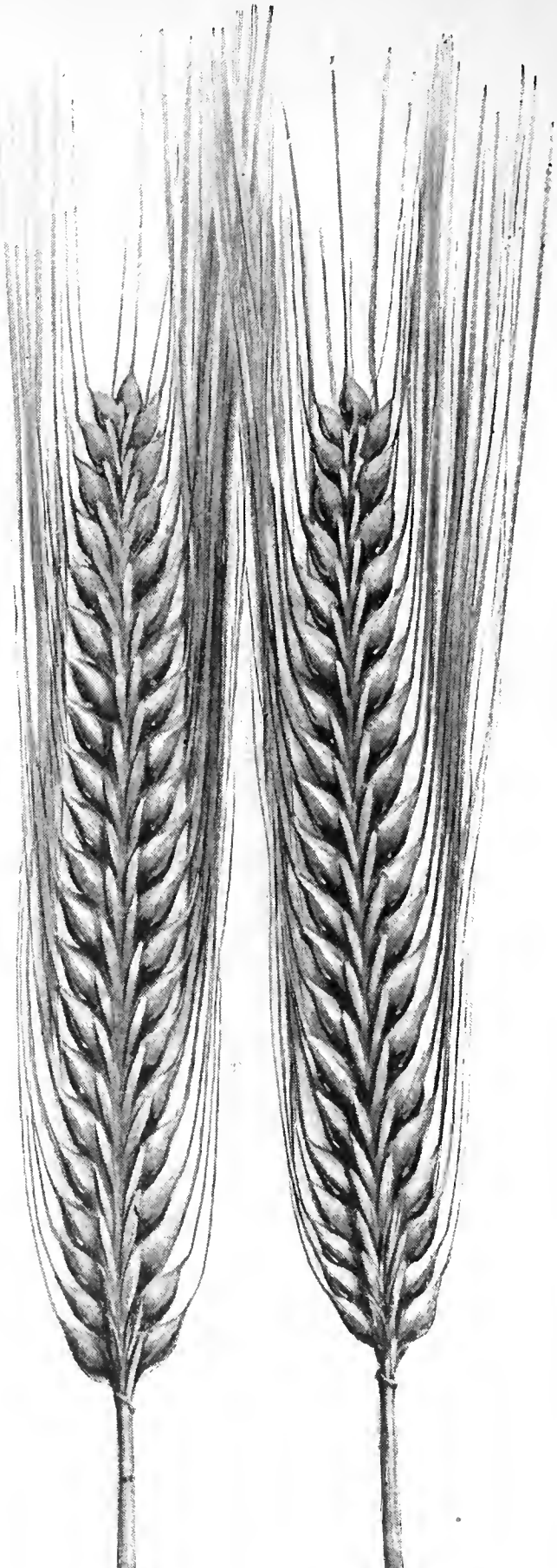
INTRODUCED FOR THE FIRST TIME BY US IN 1889.

SOME OF THE MORE IMPORTANT PRIZES AWARDED DURING RECENT YEARS:—

FIRST PRIZE, LONDON.
FIRST PRIZE, GUILDFORD.
FIRST PRIZE, CHILTERN HILLS.
FIRST PRIZE, PRINCES RISBORO'.
FIRST PRIZE, BRENTWOOD.
FIRST PRIZE, CHERTSEY.
FIRST PRIZE, EGHAM.
FIRST PRIZE, BATH.
FIRST PRIZE, OXFORD.

The Goldthorpe Barley originated some years ago upon the land of a Nottinghamshire Farmer. A single ear was found in a crop of Chevalier, attracting attention by reason of its closely-packed, even-grained appearance, as well as by the length of the straw, and robust character of the plant from which it sprang. The Goldthorpe Barley has been carefully re-selected each year up to the present date, the handsome appearance of the crops securing admiration from all who have seen it in growth. It is distinct from the Spratt, Archer, or Beardless Barleys, and the grain is of first-rate malting quality.

The Goldthorpe Barley is remarkable for stout straw, rendering it less liable to layer in rainy weather than other Barleys; it ripens forward on strong land, and the grain is very level, and of fine texture.



Photographed from Nature and Copyrighted by J. C & Co.

"I may state I have grown a large quantity of Carters' Goldthorpe Barley and find it yields better than any other sort, and for the last few years I have made more money of it than any other."—H.D.

"I purchased half a bushel of Goldthorpe Barley last Spring, and I must say that it is a beautiful crop for the season. I shall let you know what I get from it in course of time. It has made some of our country folk open their eyes, and it's the talk of the village."—T.W.C.

Only 7 Pecks per acre are required to be sown of this highly-selected Barley.

Price 10/6 per bushel; 75/- per quarter.

Reduced rates for more than One Quarter.

CARTERS', 237, 238, & 97, HIGH HOLBORN, LONDON.—1901.

SUNDRY AGRICULTURAL PLANTS,

USEFUL FOR

Forage Crops, Ensilage, Ploughing-in, and other purposes.

These prices are subject to fluctuations of the market.

AMMOPHILA ARUNDINACEA (*Sea Reed Grass*).—A strong grass, suitable for binding sandbanks by means of its turfy and creeping roots. This is the grass which is largely grown on the sand dunes on the Dutch and Belgian Coasts.

Price 1/3 per lb.

BEAN (*Faba vulgaris*)—A useful crop on strong deep soils, and largely grown in the counties bordering the eastern side of the country. Sow from 3 to 4 bushels per acre, according to the custom of the locality, in drills, if raised, about 24 inches apart, if on the flat, about 18 inches apart. Winter Beans are generally sown from October to November; Spring Beans in February.

Selected Tick Bean, Early Mazagan Bean, Heligoland Bean, Winter Bean, } Prices on Application.

BEET, SUGAR (Carters' Prize Nursery)—In view of the encouragement now given to the cultivation of Sugar Beet in this country, as an aid to farmers, we cannot give too much prominence to the remarkable qualities of this stock. It has been selected by us to give the British farmer an opportunity of competing with the most celebrated Continental growers of Sugar Beet. Its richness in Saccharine matter cannot be surpassed. The Seed we offer has been saved from roots tested by a specialist who has made this subject a life-long study, and who works with up-to-date scientific facilities solely with the object of producing roots to yield the highest possible percentage of sugar.

The cultivation of Sugar Beet is the same as that for Mangel, only that the roots may remain closer together on the ground.

Drill 12 lbs. per acre, in rows 16 inches apart in April.

Price 1s. 3d. per pound.

BROOM (*Cytisus scoparius*).—A useful plant in the formation of coverts, or for furnishing the outer edges of plantations or hilly drives. The seed, which is of somewhat slow germination, may be sown at the rate of 40 lbs. per acre, or sown in a bed the young stuff can be transplanted.

Price 10d. per lb. ; 88s. per cwt.

BROME GRASS (*Bromus species*).—Produces an enormous crop of broad-leaved Grass. It is of remarkably quick growth, very succulent and sweet. A trial plot in our Experimental Grounds was beautifully green in January, and until the frosts commenced it was in full growth, contrasting favourably with every other variety of Grass or Clover with which we are familiar, and which were growing side by side with Brome Grass.

The seed should be sown at the rate of 30 to 40 lbs. per acre, the first or second week in April.

Price 1s. 6d. per lb.

BUCKWHEAT (*Polygonum fagopyrum*).—Cultivated in this country as a food for poultry, also as a forage plant for green-manuring, or sown amongst young plantations to protect the roots from drought, and feed game. Pheasants are particularly fond of it.

It thrives on poor land if drained, and when required for manuring, it should be rolled down and ploughed in or cut when in full bloom. Sow 2 bushels per acre broadcast, or in rows 1 foot apart, at the end of May.

Price 6s. 6d. per bushel.

BURNET (*Sanguisorba officinalis*).—A useful plant to sow on soils too poor or parched to carry Clover or Sainfoin. It furnishes a useful change of food to sheep or milch cows, whilst the straw is useful for fodder. Sow 30 to 40 lbs. per acre in April, with or without a corn crop.

Price 6d. per lb.

CHICORY (*Cichorium intybus*)—A hardy and exceedingly nutritious forage plant and sheep food that will thrive on almost any kind of soil. When grown, however, for its roots, a light, deep soil should be selected. Sow 12 lbs. per acre for forage, 6 lb. for roots in 1 foot drills, and thin out to 1 foot apart in May.

Price 2s. per lb.

ELYMUS ARENARIUS (*Upright Sea Lyme Grass*).—Succulent grass, principally used for binding loose sandy soils.

Price 1/6 per lb.

FENUGREEK (*Trigonella Fœnum-græcum*).—A South European plant but sparsely grown in this country. Its chief value is in its seeds, which are largely used as a condiment for rendering an enticing flavour to damaged hay or other food that will not be readily eaten by stock. Sow 24 to 30 lbs. per acre.

Price 9d. per lb.

FIELD PEAS (*Pisum species*).—The quick-growing nimble peas are largely grown in some parts of the country for furnishing a useful food early in the Summer. They only occupy the ground for a few weeks, and can be got off the land in good time for Swede or Turnips. Sow 2 to 3 bushels per acre.

Price 8s. 6d. per bushel.

FURZE or GORSE (*Ulex Europæus*).—A plant found in hedges and on sandy wastes; is now being extensively cultivated as a green forage crop, and it is particularly valuable for sowing where the natural position of the land renders frequent cultivation difficult or expensive. The plant lasts in cut for many years. Stock eat the young growth greedily, especially when bruised. Sow in drills in March, with or without a light corn crop. Well roll after sowing, and keep the land clean and free from weeds. Cut the young growth when under one foot high. Quantity required per acre, 36 to 45 lbs. in drills a foot apart; 1 lb. of seed is sufficient for one hundred yards of line.

Price 1s. 1d. per lb. ; 115s. per cwt.

HEMP (*Cannabis sativa*).—This plant is an annual, and is grown for its fibre and seeds. In this country it reaches a height of about six feet. The land should be clean and well-treated, fairly moist and well-drained. From the end of April to early May is the best time for sowing the seed. Three to four pecks is the quantity required for an acre drilled in rows about 2 feet apart, not too deep in the ground. When the plants are 3 or 4 inches high, they should be thinned out to a foot apart. Given a good season they will flower in about 12 weeks. If the crop is wanted for its fibre, it is pulled directly the flowering stage is complete; if wanted for both seed and fibre, the male plants are pulled only, leaving those bearing seed until it is matured, which is in about another month's time. The produce of seed is about 16 bushels per acre, and with, say 2 tons of straw, yielding about 40 stones of dressed fibre.

Price 8s. 6d. per bushel.

HUNGARIAN FORAGE GRASS (*Bromus inermis*).—"A forage plant recommended on account of the manner in which it has stood on dry sterile soils where long-continued droughts make so many plants succumb. It gives a luxuriant crop, particularly on fresh sandy loam soil, and where the climate is warm. It is found that animals eat it greedily, whether in the green or in the dry state, so that it can be used as mown or saved for winter use. It is also useful in filling up gaps where Lucerne or Clover crops have failed. It will stand under favourable conditions for twelve years, and give as much food in one month as Lucerne gives in three months."—*Hungarian Agriculturist.*

The seed is sown in the early Spring at the rate of 24 to 30 lbs. per acre.

Price 1s. 3d. per lb.

KIDNEY VETCH (*Anthyllis vulneraria*).—A native plant, popularly known as the Yellow Sand Clover, and specially adapted for producing a useful bite for sheep upon poor thin sands and chalky soils; of late years it has been extensively used in the Home Counties and also in the East of England. It stands drought well; all stock like it; grows good crops of hay; yields 2 to 4 tons per acre. Sow 25 lbs. per acre in rows a foot apart.

Price 1s. 6d. per lb.

LATHYRUS SYLVESTRIS (*Flat Pea*).—A fodder plant, said to be twice as nutritious as Lucerne, no manure wanted, and will grow anywhere. It appears to be of little service where a quick crop is required, but when time is no object it is said to give enormous cuttings the second and third years. Beyond the experimental stage we have not tested the capabilities of this plant, and only offer it (so long as stock lasts) for the convenience of those of our Customers who may wish to try it.

Price 2s. 6d. per lb

LINSEED or FLAX (*Linum usitatissimum*).—An annual, largely cultivated in Ireland for its fibre, produced from the dried stems; it is also grown in some parts of England for seed purposes. Thrives on rich fertile land in good tilth, and may be put down with or without a corn crop in April at the rate of 1½ to 2 bushels per acre, or alone in drills 9 inches apart. The surface soil should be kept scrupulously clean until the plant is well established.

True Riga Flax, price 12s. per bushel.

LUCERNE (*see page* 29).

LUPINS (*Lupinus species*).—The special value of the Lupin lies in the fact that it thrives well on high, dry, sandy situations, where hardly any other leguminous forage plant would live.

It is chiefly used for feeding off with sheep, but may also be soiled, ploughed in green, or allowed to seed, which is valuable for sheep-feeding, and is sometimes mixed with other food for horses.

There are several species, of which two are principally used in agriculture, viz., the Yellow Lupin, for forage and green-manuring, and the Blue Lupin, for a crop of seed.

Drill in May 1½ to 2 bushels per acre, allowing about 18 inches between the rows.

Price 9s. per bushel.

SUNDRY AGRICULTURAL PLANTS—*Continued.*

MUSTARD, WHITE (*Sinapis alba*).—One of the quickest-growing green crops we have, and exceedingly useful as a means of producing sheep keep in times of scarcity, or when turnips have failed through drought; sow 20 lbs. per acre broadcast upon a shallow furrow, harrow in and roll; under ordinary conditions the crop should be ready in six weeks. Again, it may be sown broadcast over rape or early turnips when such are required for feeding young during the Autumn. This plant will not stand frost. Grown as a seed crop it is sown in April.

Price 15s. to 17s. per bushel.

MAIZE or INDIAN CORN.—We generally import a quantity of the leading American kinds for sowing early in June at the rate of 2 bushels per acre in drills 2 feet apart, each seed 2 inches under a well-rolled surface.

Price 16s. 6d. per bushel.

PARSNIP (*Pastinaca sativa*).—A highly nutritious and remunerative root crop on rich deep soil, and very popular for stock feeding in some parts of the country. Sow 6 to 8 lbs. per acre during March, in rows about 16 inches apart, the plants to be ultimately singled out to 8 inches in the rows, and lift the roots as required during Winter; they keep best if covered with litter during severe frost. The most popular cattle feeding varieties are the following:—

Large Cattle, price 1s. 4d. per lb.

Large Jersey or Guernsey, price 1s. 2d. per lb.

PEAS—For Podding. (*See page* 68.)

PRICKLY COMFREY (*Symphytum asperrimum*)—Prickly Comfrey is specially adapted for the feeding and fattening of stock, and for increasing the milk of cows; it grows more rapidly and luxuriantly than any other green soiling plant, producing on a given space a far greater quantity of forage than any crop now grown.

Comfrey being a deeply-rooted plant, is independent of weather and climate, for in the driest and hottest seasons it will afford several heavy cuttings when all other vegetation is either burnt up or at a standstill.

Strong Grown Sets, price per 100, 5s.; per 1,000, 40s.

The number of sets per acre will vary with the quality of the land. Where it is poor, a closer plant will be necessary to fully occupy it than where rich land is to be planted. The following table will be of service:—

Between the Drills.	Between the Sets.	Sets per acre
3 feet	3 feet	4,840
3 feet	2 feet	7,260
2 feet	2 feet	10,890
2 feet	1½ feet	14,520

RAPE (*Brassica napus*).—A popular and valuable feeding plant of the cabbage tribe. Recommended for all classes of land except poor thin soils, and burning gravels. If sown alone, the quantity of seed required is 6 lbs. per acre, in rows, 2 feet apart, or mixed with early turnips, it is very valuable for Autumn and Spring feeding, and fattens sheep quickly. In some parts it is cut and given to stall-fed stock. Successional sowings may be made from May to August.

12s. 6d. and 14s. per bushel.

REED CANARY GRASS (*Phalaris Arundinacea*).—PERENNIAL.—Flowers in July. ROOT.—Creeping, sending out large fibres. STRAW.—Rough, 3 to 6 feet high. SEED.—Affords agreeable food for many kinds of wild fowls, as well as to carp, trout, and other fresh water fish.

This grass is suitable for marsh land, banks of rivers, and sides of lakes. It greatly assists in drying wet marshy land, and in the course of four or five years has turned useless land into fertile meadows.

In its natural habitat it is welcomed by sportsmen as a splendid cover for water fowl, snipe, &c. When the leaves are young and succulent it gives a good bite to cattle.

Price 3s. per lb.

RIB GRASS (*Plantago lanceolata*).—This plant is only of service on poor, light lands that will not carry a better crop. It gives a wholesome herbage for sheep, and should be sown at the rate of 16 lbs. per acre.

Price 3d. per lb.; 27s. per cwt.

RYE (*Secale sativum*).—This crop is not cultivated to such an extent as its value demands. It is commonly taken after wheat, put in during August and September to produce early feed, in combination with roots, from November, if weather is mild, through to the Spring, and sown at the rate of 3 or 4 bushels per acre, drilled or broadcast on the furrow and harrowed in. It is frequently sown with Tares, and if intended for feeding off with sheep, Rape may also be put in with it, and it makes an agreeable fodder for cattle, put through the cutter with wheat straw.

Price 6s. per bushel.

SAINFOIN (*Onobrychis sativa*).—Sainfoin is one of the most valuable forage plants we possess for growing on dry, light, or shallow soils; but it will grow on almost any soil, provided it contains a fair proportion of lime, and is free from stagnant water.

March and April is the best time to sow the seed. It is generally put in with a barley crop, being drilled across the rows of corn at the rate of 4 or 5 bushels of seed in husk, or 56 lbs. of milled seed per acre; drills from 9 to 12 ins. apart.

Milled Seed, 7d. per lb.; 58s. per cwt.

English Common, 7s. bush., 52s. qr.; English Giant, 7s. bush., 52s. qr.

N.B.—As Sainfoin Seed is an article only to be bought upon markets, and as we are thus unable to test its character we cannot undertake any responsibility as to the crop produced from any Sainfoin Seed sold by us.

CARTERS' SAINFOIN MIXTURE, specially adapted for sowing upon the oolite and chalk formations. It will produce excellent pasturage and heavy crops of hay, consisting of Sainfoin, White and Alsike Clover, Cow Grass, and the strongest growing and most nutritious Grasses.

Price 26s. per acre.

SERRADELLA (*Ornithopus sativus*).—A forage plant grown in some counties; its cultivation, however, has never become popular in England, probably on account of the little that is known generally of its capabilities.

Price 8d. per lb.

SHEEP'S PARSLEY (*Petroselinum sativum*).—So called because sheep are especially fond of it; it thrives well upon Uplands and Downs, or under conditions generally favourable to sheep. All stock will eat it readily, and it is said to prevent certain diseases—amongst others, liver-rot and red-water. A pound or two per acre might well be included in many mixtures for permanent pastures. Sow 8 lbs. per acre alone.

Price 7d. per lb.; 63s. per cwt.

SORGHUM SACCHARATUM.—(Chinese Sugar-cane.) A strong growing succulent grass; very useful in dry and hot summers. Drill at the rate of 16 lbs. per acre in May; if broadcasted, a little more seed is advisable.

Price 1s. per lb.

SUNFLOWER (*Helianthus annuus*).—Grown for feeding Bees, Game, and Poultry, and also for its oil-yielding properties. We offer a giant variety.

Price 1s. 3d. per lb.

SPRING AND WINTER TARES (*Vicia sativa*).—A quick-growing crop, sown at intervals, from Spring until late in the Autumn, to give a succession of valuable food, and drilled at the rate of 3 bushels per acre on land that is in good condition. Tares do not require very deep tillage, and may be grown upon a wide range of soils, but give the best return upon a stronger class of loams. They are very nutritious, and suitable for all kinds of stock; may be siloed, made into hay, or fed to sheep in racks on the land where grown. It is a good plan to sow a little Rye or Oats with Tares, as it helps them to stand up during heavy rains and windy weather.

Spring Tares, price 8s. 6d. per bushel. Winter Tares, price 9s. per bushel.

SPURREY (*Spergula arvensis*).—An annual weed that has been found of service on poor dry lands in some parts of the country. Broadcast about 14 lbs. per acre during April, and cut when in flower.

Price 6d. per lb.; 52s. per cwt.

TRIFOLIUM INCARNATUM.—As a stubble-plant, sown either alone or with Rye Grass, after the corn crop is removed, at the rate of 20 to 30 lbs. per acre, Trifolium has few equals. It will produce an enormous crop very early in the following Spring, suitable either for consumption as green food or for hay. The plant should be cut directly the flower head appears, and before it has time to mature. All kinds of stock eat it freely. Upon imperfect clover-leys and other crops intended to produce green Spring food, but that may be deficient in plant, Trifolium is invaluable, by reason of its remarkably rapid Spring growth and abundant productiveness.

Early Red. Late Red. Late White.

Price on application.

WINTER OATS (*Avena species*).—A useful Oat for Autumn sowing, the young growth furnishing a serviceable fodder for soiling or nibble for sheep between Winter and Spring. Sow 3 bushels per acre.

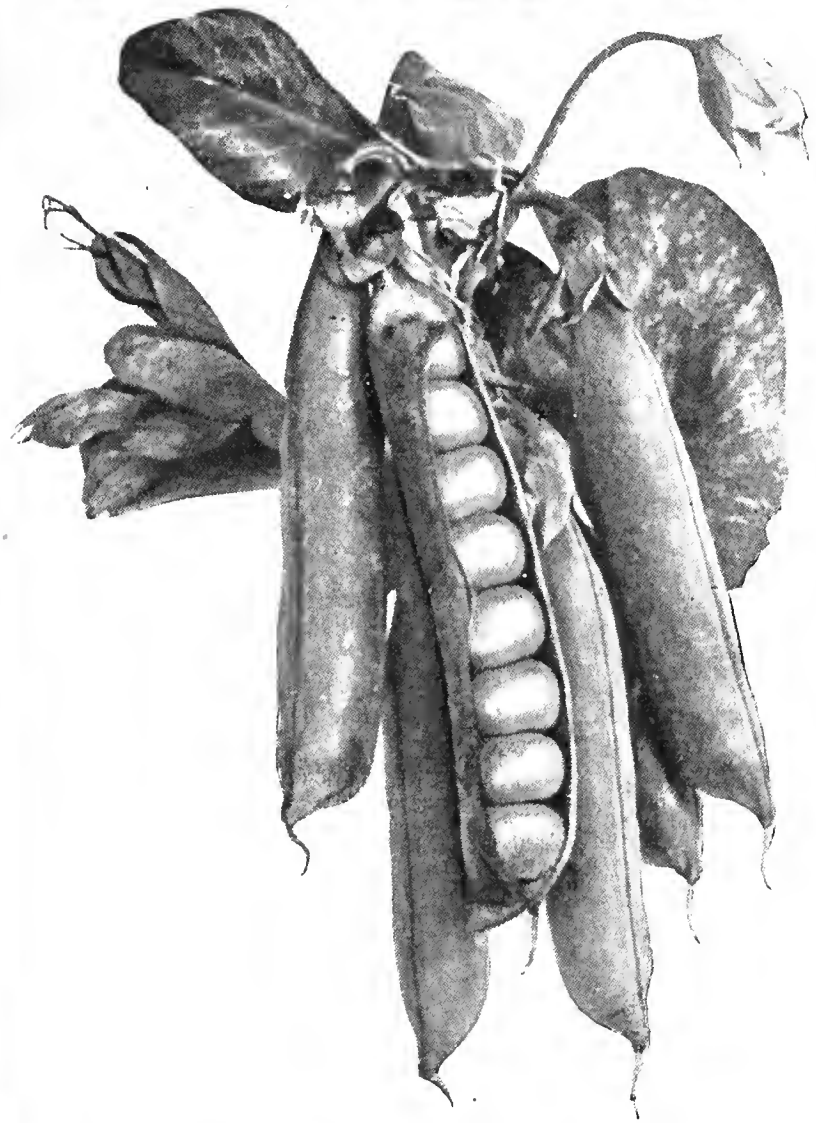
Carters' Re-selected, price 6s. 6d. per bushel.

WINTER BARLEY (*Hordeum species*).—A hardy variety, useful for Autumn sowing, and valuable in its young growth as green Winter and Spring Food. Sow 1½ bushels per acre.

Carters' Re-selected, price 8s. 6d. per bushel.

PEAS and other SEEDS for MARKET GROWERS.

An increased area is occupied each season in the production of choice Vegetables for Marketing purposes, and as the population gets larger so also will the demand extend. Nothing is more profitable than good breadths of the proper varieties at the right time, and those who keep pace with the times in this respect are making good incomes.



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THE ADVANTAGES OF GROWING RELIABLE SEED.

Extract from letter received August 25th.

"I had 15 acres of Prince of Wales Peas grown from your seed, the best anyone could wish for; when picked they turned off 211 pots per acre, by far the largest crop the dealer had ever picked or seen."

Mr. G. PITCHER, Worcester

PEAS.	Height.
Carters' First Crop,	2½ ft.
William Hurst,	1 ft.
Exonian,	2½ ft.
Daisy,	1 ft.
English Wonder,	1½ ft.
Sunrise,	2½ ft.
Charles I.,	3 ft.
Abundance,	2½ ft.
Telegraph,	4 ft.
Improved Sickle,	4 ft.
Stratagem,	2 ft.
Duke of York,	3 ft.

PEAS.	Height.
Telephone,	4 ft.
Champion of England,	4 ft.
Fillbasket,	3 ft.
Prince of Wales,	3 ft.
Pride of the Market,	2 ft.
Leicester Defiance,	3 ft.
Prizetaker,	5 ft.
Heroine,	2½ ft.
Ne Plus Ultra,	6 ft.
Dr. McLean,	2½ ft.
Veitch's Perfection,	3 ft.
Yorkshire Hero,	3 ft.

BROAD BEANS.
Mammoth Longpod.
Broad Windsor.

RUNNER BEANS.
Carters' Champion.
Painted Lady.

DWARF BEANS.
Negro Longpod.
Ne Plus Ultra.
Canadian Wonder.

BEET.
Carters' Perfection.
Red Garden.

BROCCOLI.
Covent Garden White.
Early Purple Sprouting.
Leamington.

BRUSSELS SPROUTS.
Carters' Holborn.

CUCUMBER.
Carters' Model.
Stockwood Ridge.

CAULIFLOWER.
Carters' Early Autumn.
Autumn Giant.

CABBAGE.
Carters' Heartwell Early.
Early Rainham.
Ellam's Early.
Carters' Mammoth Beefheart.

CARROT.
Carters' Summer Favourite.
Carters' Scarlet Perfection.

CELERY.
Carters' Solid White.
Standard Bearer Pink.

LEEK.
Carters' Model.

LETTUCE.
Carters' Giant White Cos.
Paris Green Cos.

ONION.
Bedfordshire Champion.
White Spanish.
White Lisbon.

PARSNIP.
Carters' Maltese.

PARSLEY.
Carters' Moss Curled.

RADISH.
Scarlet Turnip White Tip.
French Breakfast.
Olive Shaped.
Turnip.
Long Scarlet.

SPINACH.
Thick-Leaved Round.
Market Favourite.

TOMATO.
Carters' Duke of York.

TURNIP.
Carters' Jersey Lily, White.
Carters' Golden Ball.

SPECIAL PRICES ON APPLICATION.

CARTERS' POPULAR COLLECTIONS OF VEGETABLE SEEDS

FOR FARMERS' GARDENS.

Price 2/6, 5/0, 7/6, 9/0, 10/6, 12/6 15/0, and 21/0.

All sent packing and Carriage free. List of Contents on application.

Are you quite certain you are growing the Choicest Varieties of Vegetables?

Every year we test at our experimental grounds in Essex, Surrey, and Middlesex, some thousands of samples of Vegetable seeds collected from all parts of the world. Last year these trials included 1,211 different stocks and varieties of Garden Peas, 300 varieties of Lettuces, and several hundred of other vegetables, like Onions, Turnips, Carrots, &c., and the merits or demerits of each were carefully noted in Books of Record. With this exceptional knowledge we can conscientiously say that there are no seeds better for Exhibition or Table use than those offered in the following assortment.

CARTERS' "PRIZE-WINNING" Collection of TESTED VEGETABLE SEEDS.

SUFFICIENT FOR A GOOD SIZED GARDEN.

NEARLY A QUARTER MILLION SEEDS IN A DECORATED TIN BOX.

Packing and post free on receipt of remittance for 12/9.

½ pint	PEAS	Carters' Early Morn.
½ ,,	,,	Carters' Daisy.
½ ,,	,,	Carters' Model Telephone.
½ ,,	,,	Carters' Danby Stratagem.
½ ,,	,,	Carters Model Telegraph.
½ ,,	BEANS	Carters' Leviathan.
½ ,,	,,	Carters' Canadian Wonder.
½ ,,	,,	Carters' Elephant Runner.
½ ounce	BEET,	Carters' Perfection.
½ ,,	,,	Carters' Crimson Ball.
½ ,,	BORECOLE,	Carters' Welsh.
1 packet	BROCCOLI,	Carters' Mammoth Spring White.
½ ounce	BRUSSELS SPROUTS,	Carters' Holborn Exhibition.
½ ounce	CABBAGE,	Carters' Heartwell,
½ ,,	,,	Carters' Beefheart.
½ ,,	SAVOY,	Carters' Dwarf Green Curled.
1 packet	CAULIFLOWER,	Carters' Defiance.
1 ,,	,,	Carters' Extra Early Autumn Giant.
½ ounce	CARROT,	Carters' Summer Favourite.
½ ,,	,,	Carters' Scarlet Perfection.
1 packet	CELERY,	Carters' Incomparable Crimson.
1 ,,	,,	Carters' Solid Ivory.
½ ounce	ENDIVE,	Carters' Mossy Curled.
1 packet	CUCUMBER,	Carters' Model.
1 ,,	LETTUCE,	Carters' Giant White Cos.
1 packet	LETTUCE,	Carters' Harbinger.
2 ounces	MUSTARD,	Carters' Finest White.
2 ,,	CRESS,	Carters' Curled.
1 packet	LEEK,	Carters' Holborn Model.
1 ,,	MELON,	Carters' Blenheim Orange.
½ ounce	ONION,	Carters' Record.
1 packet	,,	Carters' Ailsa Craig.
1 ounce	RADISH,	Carters' Delicatesse.
½ ,,	PARSNIP,	Carters' Maltese.
1 ,,	SPINACH,	Carters' Carter.
1 packet	TOMATO,	Carters' Duke of York.
½ ounce	TURNIP,	Carters' Jersey Lily.
1 packet	VEGETABLE MARROW,	Carters' Cream.

During the past three Seasons

4,719 PRIZES, WON IN OPEN COMPETITION,

have been reported to us by customers, mostly taken with the aboved-named varieties.

VEGETABLE SEEDS FOR MARKET GROWERS, see page 68.

TERMS OF BUSINESS.

Conditions of Guarantee of Quality.—We guarantee our Seeds, Bulbs, etc., according to the quality purchased, to be of the highest average standard of vitality of the season, and it is open to the purchaser to confirm this by submitting the samples to professional analysis at his own expense. We cannot, however, be in any way responsible for the produce of Seeds, Bulbs, &c., sold under this guarantee, or for errors of description; and it must therefore be clearly understood that our responsibility ceases upon the final acceptance of the goods.

Orders.—When practicable, Orders should be written separately from General Letters or Enquiries. Please write your Name and Address in full, also nearest Railway Station or Shipping Port to which the Goods are to be forwarded. All letters are opened under the direction of one of our Principals, and the Orders are given out for execution under personal supervision. Plant Orders are sometimes delayed by severe or hot weather, and they at all times take longer to execute than Bulb or Seed Orders, in consequence of the time required in lifting and packing, especially in the autumn, after the long accumulation of Orders.

New Customers.—We beg respectfully to state that on opening an account it is necessary for us to receive Cash with the Order, or a referenee to a Banker or some one known to our House.

Free Carriage of Goods (except in cases where the cost of carriage absorbs the value of the parcel, when we reserve to ourselves the right to send unpaid).—We deliver Seeds, Potatoes, Plants, and Bulbs Carriage Paid to any Railway Station in England and Wales, or to any Port in Ireland or Scotland where practicable, also Free by Parcels Post to Purchasers' door where possible. *We occasionally hear of charges being made by the Railway Companies, notwithstanding that our address label bears the imprint in bold letters, "Carriage Paid." In cases where a Charge for the Railway Carriage is made, when the Package is labelled "Carriage Paid," Purchasers should on no account pay the demand, but refer the Carriers to us. Charges for delivery from Stations (if any) must be borne by the consignee.* Glass and other Goods liable to breakage are sent out securely packed, but beyond that we cannot be responsible for damage in transit. Notice of damage should be at once made to, and compensation claimed from, the Carriers.

Cash Discount.—We allow 5 per cent. discount off the total amount of invoice on all goods paid for with order, or within 14 days from the date of invoice (unless other terms are specified or arranged), but at no later period.

Term of Credit.—Our fullest term of credit is three months from date of invoice and without discount, and our books are made up quarterly—*i.e.*, March 1st, June 1st, September 1st, and December 1st. Five per cent. interest will be charged upon overdue accounts.

Remittances.—Postal Orders, Post Office Orders, or Cheques on any Bank are acceptable, and should be drawn in favour of JAMES CARTER & Co., and crossed "London and Westminster Bank."

Empty Packages, Hampers, Boxes, Sacks, Bags, etc., are charged at cost price, and full price will be allowed for them when returned immediately, carriage paid, and in good condition. These should be in every case marked "Empties from ———;" a letter by post informing us of their despatch is also necessary. Booking charges must be prepaid, and a receipt should be taken, so that the value may be recovered if they are lost or missent. Coin, other valuables, or important communications should on no account be enclosed with returned empties. On receipt of a post-card, we will send printed address labels.

Attention to Customers.—It is our earnest desire that all the requirements and directions of Customers be scrupulously attended to by our assistants, and we practise the utmost personal supervision to see that they are carried out. We would, therefore, respectfully request that we be informed if at any time there is cause for dissatisfaction, that we may have it rectified at the earliest possible moment.

Change of Address.—Please notify to us any change of Permanent Address, in order that we may be able to forward our Catalogues with regularity. The favour of your kind recommendation of our House to those of your friends requiring Seeds for the Garden or Farm, or Plants and Flower Roots for the Garden or Conservatory, is respectfully solicited. We shall be pleased, at all times, to forward our Catalogues to any address we may be favoured with.

Stewards and Gardeners.—We have at all times a number of experienced men on our Registers, and shall be glad to hear from any Customer requiring persons in either of these capacities.

Seeds for Cottagers, etc.—Seeds for distribution to Cottagers, for Allotments, Soldiers' Gardens, Local Horticultural Societies, Hotel-keepers, etc., supplied at special terms.

Suppliers to the British Government, the Crown Agents for the Colonies, and the leading Foreign Governments.

237, 238, & 97, HIGH HOLBORN, LONDON, ENGLAND.

FEBRUARY 1, 1901.

PRINTED FOR AND PUBLISHED BY JAMES CARTER AND CO., SEEDSMEN, HIGH HOLBORN, LONDON.

CARTERS TESTED SEEDS FOR THE FARM

1901

CARTERS HOLBORN ELEPHANT SWEDE (*see page* 30)

MANGEL
CLOVER
GRASS
SWEDE
TURNIP
CARROT
CABBAGE
POTATOES
ETC.

James Carter & Co

Farmers, Seed Growers and Merchants,

237, 238, & 97, HIGH HOLBORN,

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